Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

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Operations and Services
Dissemination Services NWSPD 10-17

VALID TIME EVENT CODE (VTEC)

NOTICE: This publication is available at: http://www.nws.noaa.gov/directives/.

OPR: OS51 (H. White) **Certified by:** OS51 (R. McLeod)
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SUMMARY OF REVISIONS: This directive supercedes NWSI 10-1703, "Valid Time Event Code," effective June 11, 2004. Major changes include:

1) The VTEC Implementation language has been updated (see Section 1.3).
2) "Orphaned" VTEC events are discussed (see Section 1.7).
3) Events defined for elevation ranges within an area (e.g., zone or county) are discussed (see Section 2.2.2).
4) An Extension in Time (EXT) is now allowed for just a portion of the area of an ongoing VTEC event (see Section 2.2.2).
5) The Expired (EXP) action code definition now specifies the time period that it may be used both before and after an event ends (see Section 2.2.2).
6) The Canceled (CAN) action code definition now specifies the time period that it may be used after an event has been cancelled for a final follow-up or terminating statement (see Section 2.2.2).
7) The Routine (ROU) action code definition has been updated (see Section 2.2.2). ROU usage has changed in Routine Marine products (see Section 3.5.1). ROU is now used in Flood Warnings for Forecast Points (see Section 5.2).
8) The procedure for correcting an upgrade, downgrade, or replacement action has been specified (see Section 2.2.2).
9) Multiple segments of the same VTEC event in a single product will generally share the same ETN (see Section 2.2.6).
10) The special ETN rules for Nationally-originated events are specified (see the new Section 2.2.6.1).
11) The examples showing coding of the date/time groups using the various VTEC action codes has been redone (see Section 2.2.7).
12) The order of multiple P-VTEC strings in a single product segment has been specified (see the new Section 3.3).
13) The special P-VTEC rules for Severe Thunderstorm and Tornado products has been consolidated (now in Section 3.4).
14) ETNs used in OCONUS WCNs are discussed (see Sections 3.4 and 3.4.1).
15) The implementation schedule for VTEC in Routine Marine products has been updated (see Section 3.5.1).

16) VTEC coding in Routine Marine products is no longer required for (or limited to) the first three forecast periods (see Section 3.5.1).
17) The sections discussing VTEC coding for Tropical Watches and Warnings (and the TCV product) have been updated (see Sections 3.5.1 and 3.6).
18) The two different uses of P-VTEC in Marine Weather Statements are specified (see the new Section 3.5.3).
19) VTEC coding in informational Coastal and Lakeshore Flood Statements is discussed (see the new Section 3.5.4).
20) A new five-character NWS Location Identifier field has been added to the H-VTEC string (see Section 4.2.1 and Appendix B).
21) Two Special H-VTEC rules have been added to Section 5 (see the new Sections 5.3 and 5.5).
22) A Table of Contents has been added and the Phenomenon Table reorganized in Appendix A.
23) New P-VTEC Phenomenon codes have been added for Areal Floods (FA), Hydrologic (HY), Small Craft for Seas (SW), and Brisk Wind (BW) (see Appendix A).
24) The Phenomenon code for Heavy Sleet (HP) has been removed (see Appendix A).
25) Seven new H-VTEC Immediate cause codes have been added, primarily for dealing with tidal and storm surge effects (see Appendix B).
26) Listings of Valid VTEC events and Upgrades/Downgrades have been added (see the new Appendix C).
27) The VTEC Examples and Interpretations have been moved to Appendix D.
28) A new Key to VTEC Examples has been added to Appendix D.
29) Many examples have been revised and some added because of the above changes.

Dennis H. McCarthy Date
Acting Director, Office of Climate,
Water, and Weather Services

Valid Time Event Code (VTEC)

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1. Introduction. The Valid Time Event Code (VTEC) always is used in conjunction with, and provides supplementary information to, the Universal Geographic Code (UGC), to further aid in the automated delivery of the National Oceanic and Atmospheric Administration's National Weather Service (NWS) text products to users. The VTEC is included in many event-driven or non-routine products and in some routine Marine forecasts (see Section 3.5.1). The VTEC provides information on the event, while the UGC (see Section 1.1) describes the affected geographic area. See important definitions in Sections 1.4, 1.5, 1.6 and 1.7.

There are two forms of VTEC: (1) the "primary" or **P**-VTEC, and (2) in certain hydrologic products, a supplementary hydrologic or **H**-VTEC that always is used in conjunction with, and occurs on the line immediately after, the P-VTEC string(s). The P-VTEC rules and format are described in Sections 1, 2, and 3; the H-VTEC rules and format, providing flood information for certain products, are described in Sections 4 and 5.

NWS text product generation software applications automatically include the P-VTEC and H-VTEC string(s) in appropriate products.

Appendices A and B provide the listing of P-VTEC elements and H-VTEC elements, respectively. Appendix C provides a link to a website listing valid VTEC events (see Section 1.4 below for the definition of a VTEC event).

Examples of the VTEC with detailed interpretation are found throughout this document. More comprehensive examples illustrating how VTEC is utilized in products are found in Appendix D.

1.1 References. Following are the NWS Instructions (NWSI) that are referenced in this document. They are on the Internet at http://www.nws.noaa.gov/directives.

NWSI 10-1701, Text Products Formats and Codes. This instruction provides the overall formatting structure for all text products.

NWSI 10-1702, Universal Geographic Code (UGC). This instruction provides the rules and formatting for the UGC.

Following are the NWSI series that describes rules and formats for most NWS products in individual Products Specifications and Regional Supplements to those NWSIs. References to the relevant Products Specifications are found throughout this document.

NWSI 10-3 series. Marine and Coastal Weather Services
NWSI 10-4 series. Fire Weather Services
NWSI 10-5 series. Public Weather Services
NWSI 10-6 series. Tropical Cyclone Weather Services
NWSI 10-9 series. Hydrologic Services

1.2 Mission Connection. The NWS mission to protect life and property and enhance the national economy is carried out by timely delivery through a variety of dissemination systems of warnings, watches, forecasts, and other relevant weather, flood, climate, and critical non-weather-related information under the “all hazards” concept (see definition in NWS Policy Directive 10-17, Dissemination, which provides the overall dissemination policy). Correct use of product formats and codes is essential to ensure this delivery and allow users to select, process, and redistribute the information regardless of the dissemination method of receipt.

1.3 Implementation. Beginning on February 8, 2005, the NWS operationally implemented the P-VTEC in five short-duration warning products produced at Weather Forecast Offices (WFOs) and in some national Convective Watch products produced by the Storm Prediction Center. The implementation of VTEC in other products will depend in part on the availability of NWS text product generation software applications and will be announced in a Service Change Notice at least 120 days in advance of the implementation date(s). Before any new operational implementations of VTEC in NWS products, VTEC tests will be announced and conducted. During any testing, select WFOs will issue products with an experimental or test VTEC string. The current VTEC-enabled NWS product suite, along with other information regarding implementation of VTEC, is available on the Internet at http://www.nws.noaa.gov/os/vtec/.

Most event-driven products that include the UGC will include the P-VTEC and, in some hydrologic products, also the H-VTEC. Additional codes may be added to the VTEC element tables in Appendices A and B, and events added to the list in Appendix C, as needed, to meet future requirements.

1.4 Definitions.

a. The **P-VTEC** identifies characteristics of the event(s), including (1) its status, type, and tracking number; and (2) the event(s) beginning and ending times.

b. The **H-VTEC** string is "triggered by" and is always present when the Phenomena Code in the P-VTEC is FL for Flood, FA for Areal Flood, FF for Flash Flood, or HY for Hydrologic. The H-VTEC provides a summary of the flood event, including the NWS location identifier, flood severity (when defined for the location); immediate cause; timing of flood beginning, crest, and end; and whether the flood will be at or near a record. The H-VTEC string occurs on a line immediately after the associated triggering P-VTEC string(s).

c. **Event**: A specific combination of phenomenon (e.g., type of weather, flood) and level of significance (e.g., Watch, Warning, Advisory - W/W/A). See Appendix A for a list of phenomena and significance levels. Common examples of events include Tornado Warning, Winter Storm Watch, Wind Advisory, Flood Warning, and Special Marine Warning.

d. **Event Beginning Time**: This is the first time group of the P-VTEC string and is the time when the event conditions (e.g., Lake Effect Snow Advisory) will become effective (i.e., when the W/W/A conditions are expected to begin occurring) for a given area. This time also may be found in plain language in the narrative part of the product. For any actions taken after the event has begun in a particular area, the P-VTEC Event Beginning Time will be encoded as zeros.

e. **Flood Beginning Time**: This is the first time group of the H-VTEC string and is the time when the forecast point is expected to (or actually did) exceed flood stage. This time also may be found in the plain language in the narrative part of the product. For certain flood events (see Section 4.2.3), the H-VTEC Flood Beginning Time will be encoded as zeros.

f. **Flood Crest Time**: This is the second time group of the H-VTEC string and is the time when the forecast point is expected to (or actually did) reach its flood crest. This time also may be found in the plain language in the narrative part of the product. For certain flood events (see Section 4.2.3), the H-VTEC Flood Crest Time will be encoded as zeros.

g. **Event Ending Time**: This is the last time group of the P-VTEC string (second of the two) and is the time when the event is no longer valid for a given area (i.e.,

when the W/W/A conditions are no longer expected to occur). Additionally, the event ending time is normally found in plain language in the narrative part of the product/segment and in the product/segment headline. For events valid "Until Further Notice", either where the ending time cannot yet be specified (as with very-long duration flooding) or is defined as open-ended (as with tropical storms), the P-VTEC Event Ending Time will be encoded as zeros.

h. **Flood Ending Time**: This is the last time group of the H-VTEC string (third of the three) and is the time when the forecast point is expected to (or actually did) fall below flood stage. This time also may be found in the plain language in the narrative part of the product. For certain flood events, including those valid "Until Further Notice," the H-VTEC Flood Ending Time will be encoded as zeros.

i. **Segment**: Each segment (of a segmented product) consists of routine or event-driven weather, hydrologic, marine, or other information that uniquely applies to a geographic area (as encoded in the UGC string[s]).* The area includes one or more counties or NWS land or marine zones. The segment format includes the UGC grouping; the VTEC; and as may be appropriate, any UGC-associated plain language geographic names, and a repeat of the Date/Time line (see NWSI 10-1701 and respective product specifications documents for complete format rules).

* Exception: Certain hydrologic products that cover large areas or have multiple forecast points within the same county or zone may have segments describing differing events for the same geographic area. See NWSI 10-922, Weather Forecast Office Hydrologic Products Specification for more information.

j. **Product**: The entire segmented or non-segmented message issued to the public under a single Mass News Disseminator (MND) header (see NWSI 10-1701 in Section 1.1) that may include information on one or more events.

k. **Product Issuance Time**: The time when a message is entered into the Advanced Weather Interactive Processing System (AWIPS) for dissemination outside the issuing office (i.e., when the message is "sent"). It is found in the abbreviated World Meteorological Organization (WMO) header and included in the MND.

l. **Product Expiration Time**: Found at the end of the last UGC group for an event, it is the time the product or product segment should no longer be used. In long-duration W/W/A products, when the event(s) is ongoing, the product expiration time is the time by which customers can expect to receive an updated product.

1.5 Event versus Segment versus Product. To use the P-VTEC and H-VTEC properly, it is important to understand the distinction between an "event," a "segment", and a "product" (as defined in Section 1.4).

The product for a short-duration event (typically non-segmented) has the same title as the name of the event itself, e.g., Tornado Warning. Many long-duration (W/W/A) products, however, include several different events (not necessarily all contained within any one product issuance) and therefore have a different title than the event names.

For example: If "heat" is the phenomena and "advisory" is the significance level, then a "Heat Advisory" is the event and the public receives the information in a Non-Precipitation Weather (NPW) product.

Another example: A Winter Weather Warnings, Watches and Advisories (WSW) product can include a variety of events, such as a Heavy Snow Warning, a Freezing Rain Advisory, and a Winter Storm Watch, all included in a single product issuance. If each event were for a different geographic area, then the WSW product would be issued in multiple segments, each describing a specific event for a specific area.

There may, however, be multiple segments within a single product which cover the same event, each for a different area. The reason for the multiple segments might be different timing or accumulations in the different areas. The multiple segments may all share the same Event Tracking Number (see Section 2.2.6).

1.6 Product Issuance Time versus Event Beginning Time. While the Event Beginning Time may be the same as or later than the Product Issuance Time, it should never be earlier. A special rule governs the coding of the Event Beginning Time after an event has begun. See Section 2.2.7 for more details.

1.7 Product Expiration Time versus Event Ending Time. For many short-duration events (e.g., Severe Thunderstorm Warning), the Product Expiration Time in the UGC string will be the same as the Event Ending Time in the P-VTEC string. For most longer duration events (i.e., those which last more than 12 hours), the product expiration time will normally be earlier than the Event Ending Time. In some very long-duration events (e.g., a Winter Storm Watch expected to start 36 hours in the future), the product may expire before the Event Beginning Time. The only time a Product Expiration Time will be later than the Event Ending Time is for final or follow-up products issued after an event has expired or been canceled.

Since one of the primary purposes of VTEC is to provide NWS customers and partners with a means to track W/W/A events from their initial issuance to their final cancellation or expiration, NWS forecasters will ensure that follow-up products for ongoing events are issued before the current product expires. This will prevent VTEC events from becoming "orphaned", where an event is still valid but the associated product has expired without being updated.

2. Primary P-VTEC Format. The P-VTEC string(s) (and any H-VTEC string[s] - see Section 4) occurs immediately after the UGC string(s) and, depending on whether the product is segmented or not, will occur in different places in the product.

In segmented products, the UGC and any VTEC strings occur at the beginning of each segment,

immediately followed by any UGC-associated plain language listing of zones or counties affected (or other words identifying the affected area). All segments of a product occur after the MND.

In non-segmented products, the UGC and VTEC strings (but without any plain language geographic listing) occur immediately after the NWS Communications Identifier and before the MND.

See NWSI 10-1701 and 10-1702 for important overall product format information.

Examples of VTEC coding in segmented and non-segmented products are found in Appendix D.

2.1 Generic Structure of P-VTEC Elements.

/k.aaa.cccc.pp.s.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/

The "aaa.cccc.pp.s.####" group depicts the characteristics of the event, and the "yymmddThhnnZ$_B$-yymmddThhnnZ$_E$" group depicts the event beginning and ending date/time in Universal Coordinated Time (UTC). Following are the individual P-VTEC code groupings/elements:

Product/VTEC String Type Identifier

k - Fixed identifier of product/VTEC string type (O, T, E, or X) (See definitions in Section 2.2.1.)

Event Group

aaa - Action
cccc - Office ID
pp - Phenomena
s - Significance
- Event Tracking Number (ETN)

Date/Time Group

yy - Year
mm - Month
dd - Date
T - Fixed Time Indicator
hh - Hour in UTC
nn - Minute in UTC
Z$_B$ - Fixed UTC Beginning Date/Time Indicator
Z$_E$ - Fixed UTC Ending Date/Time Indicator

Notes:
(1) The "T" in the Date/Time Groups is a fixed Time Indicator, with the following "hh" and "nn" being the hours and minutes in UTC, respectively.
(2) The Z_B and Z_E are the fixed UTC indicators for the beginning and ending date/time groups, respectively. The subscripts B and E are only shown in the generic format; they are not included in any actual VTEC strings in products and examples.
(3) The forward slash ('/'), period ('.'), and dash ('-') in the format are delimiters that separate fields for ease in decoding. The date/time format follows the FIPS/ANSI/ISO standard (FIPS 4-2:1998/ANSI x3.30-1997/ISO 8601:2000).

2.2 P-VTEC Element Definitions/Explanations.

2.2.1 **k** (Fixed Identifier): Identifies the following product and VTEC code string types.

k Code Definitions:

O (Operational Product) - Product defined in NWS policy and produced on a reliable and continuous basis, whose content has been validated and reflects real-time environmental conditions or events.

T (Test Product) - Product generated for the purpose of evaluation, the conduct of a communications test, or the conduct of a weather drill or test. Test products may be modeled after operational products or experimental products, but content does not reflect real-time environmental conditions or events. The word TEST will also be included in the product type line of the MND and the product text as described in NWSI 10-1701.

E (Experimental Product) - Product available for evaluation for a specified, limited time for the explicit purpose of obtaining customer feedback. Content has not been validated but generally reflects real-time environmental conditions or events.

X (Experimental VTEC in an Operational Product) - A non-operational VTEC string(s) is inserted into an otherwise operational product which is available for evaluation for a specified, limited time for the explicit purpose of obtaining customer feedback. The experimental VTEC content has not been validated but reflects real time environmental events.

Note: In multi-segmented products, "T" or "E" product type VTEC segments should never be mixed with "O" or "X" product type VTEC segments.

2.2.2 **aaa** (Action): Identifies the action in the product issuance.

Action Code Definitions: Note that the following P-VTEC action codes generally apply to all of the area defined in the UGC string for that segment, except:

- for certain EXA, EXB, and UPG actions when the entire valid area is encoded in a single segment (see definitions below), and;

- for events which are defined for certain elevation ranges of the area specified in the UGC string for that segment. In this case, the segment headline and/or text will have to be used in conjunction with the P-VTEC string(s) to determine where in the area the event is valid.

NEW (NEW) - Used for an initial issuance of an event. Also used for an event that has replaced another event for the same area, as when an event is upgraded or downgraded (see the UPG and CAN action terms below). Whenever the NEW action code is used, the

ETN increments from the last one used for that particular event. See Section 2.2.6 for more information on ETNs.

CON (CONTINUED) - Used when providing updates to an existing event, where no changes were made to the area, valid time period, or Significance category.

Note that the CON action code applies only to the area (UGC) being continued from an earlier product issuance. This CON area may now only be part of the overall area of the updated event due to other segment(s) with an action code such as EXA (EXTENDED IN AREA) which may also have acted to expand the original area.

EXA (EXTENDED IN AREA) - Used when the valid area of an existing event has been expanded from its previous issuance. No changes were made to the valid time period or significance category. Two segments may be used, each with the same ETN in the P-VTEC string as the previous product or segment: one P-VTEC string will use the EXA action code (for the newly added area), and the other will use the CON action code (for the area being continued). This will make it easily apparent which area(s) is new to the event. If later follow-up products are issued with no additional changes to the event, both areas would then be included in one segment with the CON action code.

Alternatively, one product segment may be used with the EXA action code and include both the continued area and newly expanded area.

If the valid area of an event has been contracted, the EXA code is not used. Instead, two segments are required, one to Cancel the event in the area no longer in the event (using the CAN action code, see below) and the other to Continue the event in the remaining area (using the CON code).

EXA is not used in short duration warning products. Instead, a new warning is issued.

EXT (EXTENDED IN TIME) - Used when the valid time period of an existing event (for the entire area or a portion thereof) has been made longer or shorter by changing either or both the Event Beginning or Event Ending Date/Time Group, with no changes to the area or Significance category. Since an EXT code extends in time an already existing event, when used to extend the entire area of an event it does not require a separate P-VTEC string with the CON code. If the extension in time is for only a portion of the area, two product segments are required each with the original ETN, one with the appropriate action code for the area not being extended in time (e.g., CON, CAN, EXP) and one (or more) with the EXT action code(s) for the portion being extended in time.

EXT is not used to change the Event Beginning or EndingTime once that time has been reached.

EXT is not used in Severe Thunderstorm Warnings (SVR), Tornado Warnings (TOR), Special Marine Warnings (SMW), and their associated follow-up statements. Instead, a

new warning is issued. EXT may be used in Flash Flood Warnings (FFW) and associated follow-up statements.

EXB (EXTENDED IN BOTH AREA AND TIME) - Used when the valid time period of an existing event has been changed (made longer or shorter) and the valid area has been expanded, while no changes were made to the Significance category. Two segments may be used, each with the same ETN in the P-VTEC string as the previous product or segment: one P-VTEC string will use the EXB action code (for the newly added area), and the other will use either the EXT action code (if the area being continued has an updated valid time) or the CON action code (if the area being continued is keeping its original valid time). This will make it easily apparent which area(s) is new to the event. If later follow-up products are issued with no additional changes to the event and have the same valid times, both areas would then be included in one segment with the CON action code. Alternatively, one product segment may be used with the EXB action code and include both the continued area and newly expanded area if they are valid for the same time period.

EXB is not used to change the Event Beginning or EndingTime once that time has been reached.

EXB is not used in short duration warning products. Instead, a new warning is issued.

UPG (UPGRADED) - Used in one of two ways.

- When an existing event is upgraded for the same area to a higher significance level (with either the same phenomena or an environmentally related phenomena), e.g., from a watch to an advisory or warning, or from an advisory to a warning. Specifically, a Freezing Rain Advisory changed to an Ice Storm Warning, a Winter Storm Watch to a Blizzard Warning, and a Small Craft Advisory to a Gale Warning are considered upgrades because the changes in phenomena are considered meteorologically related.

- For routine marine warnings where the phenomena have discrete criteria without overlap (e.g., a Gale Warning to a Storm Warning, or a Storm Warning to a Hurricane Force Wind Warning).

In both cases, two P-VTEC strings are used: The UPG is used in the first P-VTEC string to show the event being upgraded from (e.g., an advisory) and the NEW is used in the second P-VTEC string to show the event upgraded to (e.g., a warning). The NEW event may be for a different valid time, e.g., the warning extends the time of the original advisory, but another P-VTEC string using the EXT is not required.

UPG is not used in convective or hydrologic events. In those cases, a watch can remain in effect even after local warnings are issued. For instance, a Flash Flood Watch (FFA) may cover a large area of several counties or states, while individual Flash Flood

Warnings (FFW) may be issued for individual counties or streams (or portions thereof). The first issuance of these warnings will have a single P-VTEC string with a NEW action code.

CAN (CANCELED) - Used in one of three ways:

- The primary usage is to cancel a still-active event immediately upon product issuance, using a single P-VTEC string with the CAN action code.

- After an event has been canceled (before its scheduled ending time), a final or follow-up statement may be issued referring back to the canceled event, using a single P-VTEC string with the CAN action code.

- And finally, for non-convective and non-hydrologic events, CAN is also used to identify when an event has been downgraded to a lower significance level (e.g., from a warning to an advisory), or (for non-marine products) replaced by another event at the same significance level (e.g., from an ice storm warning to a winter storm warning). In this case, two P-VTEC strings are used: The CAN is used in the first P-VTEC string to show the event being downgraded from (e.g., a warning) and NEW is used in the second P-VTEC string to show the event downgraded to (e.g., an advisory). The NEW event (in this case, the advisory) may have a different valid time, but another P-VTEC string using the EXT is not required.

In all cases, once the CAN action code is used, that event is cancelled for the area included in that product segment. The event ending date/time in the P-VTEC string with the CAN action code remains the same as in the previous product issuance of that event. If an entire event is cancelled in error, it must be restarted using the NEW action code and a new ETN. If just a portion of an event is cancelled in error and the ETN for that event remains in effect in another area, it may be restarted in the cancelled area using the EXA or EXB action code with the still-valid ETN.

For short-duration warning products (see list in EXT definition above), the CAN action code may be used in a product issued up to 10 minutes after the time the event was cancelled. Corrections (using the COR action code) to a product or product segment with the CAN action code may be issued up to 20 minutes after the time the event was cancelled.

For all-other non-routine products, the CAN action code may be used in a product issued up to 30 minutes after the time the event was cancelled. Corrections (using the COR action code) to a product or product segment with the CAN action code may be issued up to 60 minutes after the time the event was cancelled.

EXP (EXPIRED) - Used in one of two ways:

- While an event is still active (i.e., hasn't reached its scheduled event ending time), the EXP is used in a concluding message to notify users that an event will be allowed to expire at the scheduled time.

- After an event has expired (i.e., after the scheduled event ending time), a final or follow-up message may be issued referring back to the expired event.

A concluding product with the EXP action code may be issued either just before or just after a VTEC event expires. Refer to the appropriate NWS Product Specification Document for more details. In both cases, a single P-VTEC string is used with the EXP action code, and the event ending date/time remains the same as in the previous product issuance of that event.

For short-duration warning products (see list in EXT definition above), the EXP action code may be used in a product issued five (5) minutes before event ending time to 10 minutes after the event ending time. Corrections (using the COR action code) to a product or product segment with the EXP action code may be issued up to 20 minutes after the event ending time.

For all other non-routine products, the EXP action code may be used in a product issued 30 minutes before event ending time to 30 minutes after the event ending time. Corrections (using the COR action code) to a product or product segment with the EXP action code may be issued up to 60 minutes after the event ending time.

EXP is not used in routine Marine forecasts.

ROU (ROUTINE) - Used as a VTEC placeholder for segments of VTEC-enabled products in which no other VTEC string would be used. This is done to aid parsing of product segments by NWS Partners and Customers. At present, there are two types of products where ROU is used:

- In Routine Marine Forecasts (Coastal Waters Forecast [CWF] and Great Lakes Nearshore Forecast [NSH]). Since these products are used to convey both W/W/A events and routine information, the ROU is used only when there are no other marine W/W/As included. See Section 3.5.1 for more details.

- In Flood Warnings for Forecast Points Products (warning or follow-up statement) when the forecast point included in the segment is not expected to reach flood stage but is included to provide a complete set of forecast and warning information for a series of points along a river reach. See Section 5.2 for more details.

COR (CORRECTION) - Used when correcting any non-VTEC or non-UGC error or omission in the previous product, i.e., for a typographical or grammatical error or omission which is <u>not</u> related to the VTEC or UGC coded elements. P-VTEC string(s)

with a COR action code will be used in each corrected product segment. The MND header and product text indicate the corrections. With the exception of short-duration warning products (see below), corrections related to errors or omissions in VTEC or UGC coding will be made through the use of the appropriate P-VTEC action codes.

For corrections to upgrade (via UPG), or downgrade or replacement (via CAN) actions where two P-VTEC strings are used in a product segment (see **UPG** and **CAN** definitions above), the COR action code will appear only in the second P-VTEC string which describes the NEW event. The first P-VTEC string will continue to be an UPG (for upgrade) or CAN (for downgrade or replacement). If the need is to correct the upgrade, downgrade, or replacement action itself, the only "correction" method is to cancel (by using the CAN action code) the event started as a result of the erroneous upgrade, downgrade, or replacement action, followed by an action to restart using the NEW action code and a new ETN.

In short duration warning products, the COR action code may be used in corrections involving format or dissemination code errors, or for counties (or marine zones) either omitted or erroneously added to a warning. This is done in order to clear communications systems of incorrect warning text. Follow-up statements (Severe Weather Statement [SVS] for SVRs and TORs, Flash Flood Statement [FFS] for FFWs, and Marine Weather Statement [MWS] for SMWs) may also be issued to formally cancel a warning for any erroneous counties, using the CAN action code. Refer to the appropriate NWS Products Specification Directives for more details.

2.2.3 **cccc** (Office ID). The standard four-letter identifier indicating the NWS office with the primary responsibility for the affected area. The office ID is the same as that in the plain language MND header. Any NWS office providing backup service will use the primary office's cccc.

2.2.4 **pp** (Phenomenon). Identifies the type of weather, flood, marine, fire weather, etc., occurrence (e.g., freezing rain, river flood, gale, red flag), or non-weather occurrence (e.g., radiological hazard, volcano). See Appendix A for the complete list of Phenomena codes and Appendix C for the link to the complete list of VTEC events.

2.2.5 **s** (Significance). Identifies the level of importance (e.g., watch, warning, advisory, etc.) of the weather or non-weather occurrence. When a follow-up statement is issued to update, cancel, or announce expiration of a previously issued event, the event significance code used in the updated, canceled, or expired P-VTEC string will be the same as the corresponding significance code used in the original product, even if the product was issued under a different communications identifier. See Appendix A for the complete list of Significance codes and Appendix C for the link to the complete list of VTEC events.

2.2.6 #### (Event Tracking Number - ETN). The ETN is a four-digit number assigned to keep track of how an event (as defined in Section 1.4) is addressed by various VTEC actions and/or products issued over the lifetime of the event. The ETN is assigned automatically by NWS

applications software for each type of event issued by each office, sequentially starting with 0001 for the first new event of its type for the calendar year starting at 0000 UTC on January 1. Events that are first issued in one year and carry over into the next year will maintain the same ETN (from the old year) for the duration of the event, even if the Event Beginning Time is in the new year. There is one ETN list for each specific event (combination of phenomenon and significance level), and it is used for all products or product segments containing that event, whether they be operational, test, or experimental. Because ETNs are incremented for issuances of test W/W/As (as with a Severe Weather Awareness Week), they may not represent the number of products issued for a particular event type during a calendar year.

A new ETN is assigned when the event is first issued, and the same ETN is carried when the event is continued, canceled, or extended (in area, time, or both). Note that when an event is, however, upgraded or downgraded (canceled) to another event, the original ETN is not used, and the ETN of the "new" event is incremented from the last time that event was issued.

Here is an example sequence of ETNs for a generic WFO's severe thunderstorm warnings at the beginning of a year:

ETN	Date	Product Issued
0001	2/12	Operational Severe Thunderstorm Warning for Alpha County
0002	3/17	Test Severe Thunderstorm Warning (for Weather Awareness Week)
0003	3/23	Operational Severe Thunderstorm Warning for Charlie and Baker Counties
0004	3/23	Operational Severe Thunderstorm Warning for Alpha and Delta Counties
0005	4/14	Test Severe Thunderstorm Warning for Baker County (for new proposed warning format)
0006	4/14	Test Severe Thunderstorm Warning for Charlie County (for new proposed warning format)
0007	4/24	Operational Severe Thunderstorm Warning for Delta County

If backup service is required from another office(s), the primary office's ETN is used throughout the event.

For products (e.g., WSW, NPW) that may include more than one event, each specific event within the product (e.g. Blizzard Warning, Heavy Snow Warning) will have its own ETN. For example, an office issues a NEW WSW product early in the calendar year with the following segments (each describing a specific event for a specific geographic area) and corresponding ETNs:

Segment	ETN
(1) Blizzard Warning	0003 (3rd Blizzard Warning of the year)
(2) Winter Storm Warning	0006 (6th Winter Storm Warning of the year)
(3) Snow Advisory	0008 (8th Snow Advisory of the year)
(4) Snow Advisory	0008 (8th Snow Advisory of the year)

Two weeks later, another weather system causes the same office to issue another NEW WSW with the same order of segments, with the following corresponding ETNs:

Segment	ETN
(1) Blizzard Warning	0004 (4th Blizzard Warning of the year)
(2) Winter Storm Warning	0007 (7th Winter Storm Warning of the year)
(3) Winter Storm Warning	0007 (7th Winter Storm Warning of the year)
(4) Snow Advisory	0009 (9th Snow Advisory of the year)

As shown here, the same event (phenomenon and significance) may appear in multiple segments of the same product with the same ETN, as long as the valid times of the event in the segments overlap. Appendix D, Section 2.d, depicts the Full Event Sequence of ten products issued by a WFO during a Winter Storm, from Initial Watch to Cancellation of Warnings and Advisories.

A broad weather system may cause several offices to issue the same event for their area of responsibility, such as a Winter Storm Watch within a WSW product. The ETN used by each office may not be the same, depending on how many prior Winter Storm Watches each office issued so far that year.

2.2.6.1 ETNs in Nationally-originated Events. There are special ETN rules for events which originate with a National forecast center rather than a WFO.

a. Tornado and Severe Thunderstorm Watches. The Storm Prediction Center's (SPC) Tornado and Severe Thunderstorm Watches will share the same list of sequential ETNs. For example, in a given year, there will only be one Watch 0047 from SPC. Depending on the circumstances, it could either be a Severe Thunderstorm Watch (SV.A.0047) or a Tornado Watch (TO.A.0047). Locally derived watch products issued by WFOs will use the same sequential ETNs as the original SPC watches. Since the SPC watches are national in scope, watch products from an individual WFO will not use every ETN in sequence, but the ETNs used by each WFO will be the same as in the corresponding SPC products for their local forecast and warning area. The SPC will use the ETNs 9000-9999 for test watches.

b. Tropical Storm and Hurricane Watches and Warnings. The Tropical Prediction Center/National Hurricane Center (TPC/NHC) issues all tropical cyclone watches and warnings for the Contiguous United States, Puerto Rico and U.S. Virgin Islands. The first digit of any Tropical Storm or Hurricane ETN will represent the storm basin, with the Atlantic being 1 and the Eastern Pacific being 2. The Central and Western Pacific basins may be added in the future. The second through fourth digits will represent the storm identifier, and count the number of tropical or sub-tropical systems (depressions, storms, and hurricanes) in that basin that year. The ETN will not change if the system is upgraded or downgraded. For example, the first depression of the year in the Atlantic will be assigned an ETN of 1001. If it becomes Tropical Storm Alpha or Hurricane Alpha, the ETN

remains 1001. Since not all numbered/named systems will generate Watches and Warnings for the United States, some ETNs may not be used in Watch and Warning products.

2.2.7 **yymmddThhnnZ$_B$ and yymmddThhnnZ$_E$** (Event Beginning and Ending Date/Time Groups). These groups identify the valid time span of the event (from Event Beginning Time to Event Ending Time) in UTC. See definitions in Section 1.4 and comparisons of Product and Event times in Sections 1.6 and 1.7.

The Event Beginning Date/Time group for a particular event may only be changed prior to the scheduled start of the event (i.e., before the Event Beginning Time) and only through the use of the EXT or EXB action code. After an event has begun, the Event Beginning Date/Time group is coded with ten zeros (000000T0000Z). This prevents an accidental invalidation of an ongoing event and indicates that the event is ongoing.

The Event Ending Date/Time group for a particular event may only be changed prior to the scheduled expiration or ending of the event (i.e., before the Event Ending Time), and only through the use of the EXT or EXB action code. If an event is inadvertently allowed to reach its Event Ending Time before being extended, the event will be reissued with the NEW action code and a new ETN.

For very long duration or open-ended events which are in effect "UNTIL FURTHER NOTICE," rather than giving a specific ending time for the event, the Event Ending Date/Time group is coded with ten zeros (000000T0000Z). When and if the end of the event is able to be specified, the zeros will be replaced with an actual date and time in the P-VTEC string using the EXT action code (and reflected in the flood timing of any associated H-VTEC string). The encoding of ten zeros for the Event Ending Date/Time group will only be used when the appropriate NWS Products Specification Directives specifically permits.

Here are examples of P-VTEC strings for the different P-VTEC action codes, associated with a Winter Weather Advisory event from WFO Marquette MI, to illustrate date/time group coding when the product or product segment is issued before or after the event beginning time. Unless noted, assume that all the subsequent action codes follow after the NEW.

New (NEW)

Before Event Beginning Time	`/O.NEW.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
After Event Beginning Time	`Not applicable`

Note: NEW events will always contain an explicit Event Beginning Time, even if the event begins with product issuance..

Continued (CON)

Before Event Beginning Time	`/O.CON.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
After Event Beginning Time	`/O.CON.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/`

Note: CON implies that the Event times (and the event itself) haven't changed from the previous product issuance. However, if the Event Beginning Time has passed since the previous issuance, it will be encoded as zeros (as shown in the *After Event Beginning Time* line).

Changed in Time (EXT)

Before Event Beginning Time `/O.EXT.KMQT.WW.Y.0003.050108T1400Z-050108T2100Z/`
After Event Beginning Time `/O.EXT.KMQT.WW.Y.0003.000000T0000Z-050108T2100Z/`

Note: EXT implies that the Event Beginning Time and/or Event Ending Time are changed from the previous product issuance. Once the Event Beginning Time has been reached, it cannot be changed with EXT.

Expanded in Area (EXA)

Before Event Beginning Time `/O.EXA.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
After Event Beginning Time `/O.EXA.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/`

Note: EXA implies that the area of the event included with this segment has been expanded, while the Event Beginning and Ending Times are unchanged from the previous product issuance. If the time(s) change, the EXB action code will be used instead. The expanded area is contained in the UGC string.

Changed in Time and Expanded in Area (EXB)

Before Event Beginning Time `/O.EXB.KMQT.WW.Y.0004.050108T1400Z-050108T2100Z/`
After Event Beginning Time `/O.EXB.KMQT.WW.Y.0004.000000T0000Z-050108T2100Z/`

Note: EXB implies both a change in time and an expansion in area from the previous product issuance. Either or both the Event Beginning Time and Event Ending Time are changed. The expanded area is contained in the UGC string.

Upgraded (UPG - appears always in conjunction with a NEW event)

Before Event Beginning Time `/O.UPG.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
`/O.NEW.KMQT.WS.W.0005.050108T1430Z-050108T2300Z/`
After Event Beginning Time `/O.UPG.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/`
`/O.NEW.KMQT.WS.W.0005.050108T1600Z-050108T2300Z/`

Note: UPG implies that the Winter Weather Advisory event is being cancelled in the area covered by the segment. The times of the related NEW event (in this case a Winter Storm Warning) may be different than the old event.

Cancelled (CAN)

Before Event Beginning Time `/O.CAN.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
After Event Beginning Time `/O.CAN.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/`

Note: CAN means that the Winter Weather Advisory event is cancelled immediately for this area upon product issuance. The Event Ending Time remains unchanged from the previous product issuance.

Replaced [same as for Downgraded] (CAN - always used in conjunction with a NEW event)

Before Event Beginning Time `/O.CAN.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
`/O.NEW.KMQT.SN.Y.0002.050108T1430Z-050108T2300Z/`
After Event Beginning Time `/O.CAN.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/`
`/O.NEW.KMQT.SN.Y.0002.050108T1600Z-050108T2300Z/`

Note: As with UPG, the times of the NEW event (in this case a Snow Advisory) may be different than the old event.

Expired (EXP)

Before Event Beginning Time	`Not applicable`
After Event Beginning Time	`/O.EXP.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/`

Note: EXP is defined only for events that have ended, or are about to end at their Event Ending Time. To prematurely end an event, the CAN action code will be used.

Correction to a NEW (COR)

Before Event Beginning Time	`/O.COR.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/`
After Event Beginning Time	`Not applicable`

Correction to a UPG (COR)

Before Event Beginning Time	`/O.UPG.KMQT.WW.Y.0003.050108T1430Z-050108T2300Z/` `/O.COR.KMQT.WS.W.0005.050108T1430Z-050108T2300Z/`
After Event Beginning Time	`/O.UPG.KMQT.WW.Y.0003.000000T0000Z-050108T2300Z/` `/O.COR.KMQT.WS.W.0005.050108T1600Z-050108T2300Z/`

Note: COR implies that a correction has been issued for a non-VTEC and non-UGC error or omission (see COR definition in section 2.2.2 for an exception with short-duration warnings). All the elements in the corrected segment will be the same as in the original issuance, except for the use of the COR. When correcting an upgrade, downgrade, or replacement action, COR will appear only in what had been the NEW P-VTEC string.

Routine (ROU) - appears only in Routine Marine forecasts and Flood Warnings for Forecast Points

Default Routine Marine usage	`/O.ROU.KMQT.MA.F.0000.000000T0000Z-000000T0000Z/`
Default Flood Warning usage	`/O.ROU.KMQT.HY.S.0000.000000T0000Z-000000T0000Z/`

Note: ROU will only appear either in Routine Marine forecasts when no other P-VTEC string appears or in Flood Warnings for Forecast Points in segments where flood conditions are not expected. In Routine Marine products, the ROU strings will all use the same default values for phenomena code (MA), significance level (F), ETN (0000), and Event Beginning and Ending Times (000000T0000Z). In Flood Warning products, the ROU strings will use the same default values for phenomena code (HY), significance level (S), ETN (0000), and Event Beginning and Ending Times (000000T0000Z). The associated H-VTEC strings in these Flood segments (see Section 4 for more information on H-VTEC) will contain defaults values for all elements except the site identifier and the immediate cause.

2.2.8 Example of a Full P-VTEC string (with associated UGC string). For more information on the format of examples used in this directive, see Appendix D.

Scenario: Initial issuance of a WSW product
Issuing Office: WFO Kansas City/Pleasant Hill MO (KEAX)
Current time: 1000 UTC on December 14, 2004
Event (Product being issued): Freezing Rain Advisory (WSW)
Advisory valid for: Missouri Zones 15 thru 17
Product expiration time: 1430 UTC on December 14, 2004
Event Tracking Number: 4th Freezing Rain Advisory of the year issued by KEAX
Expected Event Beginning and Ending times: 1200 UTC and 1430 UTC on December 14, 2004

```
MOZ015>017-141430-                                          (UGC)
/O.NEW.KEAX.ZR.Y.0004.041214T1200Z-041214T1430Z/            (P-VTEC)
```

Explanation: WFO Kansas City/Pleasant Hill, MO (*KEAX* - in P-VTEC), issued a new (*NEW* - in P-VTEC) operational (*O* - in P-VTEC) WSW product for Missouri Zones 15, 16 and 17 (*MOZ015>017* - in UGC), for its 4th (*0004* - in P-VTEC) Freezing Rain Advisory (*ZR.Y* - in P-VTEC) of the calendar year. The freezing rain is expected to begin at 1200 UTC on December 14, 2004 (*041214T1200Z* - in P-VTEC) and end at 1430 UTC on December 14, 2004 (*041214T1430Z* - in P-VTEC).

3. Special P-VTEC Rules, Applications and Interpretations. This section explains unique applications of P-VTEC in specific products and/or situations.

3.1 Event Significance Level Change or Replacement in Products. Two P-VTEC strings are required in the following products: WSW and NPW, Fire Weather, and certain marine products when an event for the same area is (1) upgraded/downgraded to a different significance level, e.g., a watch is being upgraded to a warning or advisory, an advisory is being upgraded to a warning, a warning is being downgraded to an advisory, or (2) replaced by a different but environmentally similar event, e.g., a winter storm warning is being replaced by an ice storm warning.

In the first P-VTEC string, the action code UPG or CAN is used to show the old W/W/A event being upgraded or canceled/replaced. In the second P-VTEC string, the action code NEW is used to start a new W/W/A event.

If a correction is required for an upgrade, downgrade, or replacement, the COR action code will appear on the second P-VTEC string only, replacing the NEW.

See Appendix C for a link to the complete VTEC Upgrade/Downgrade/Replace list.

Here are some upgrade, downgrade, and replacement examples:

Example (1) - Upgrade Watch to Warning

Scenario: Upgrade an Existing Winter Storm Watch to an Ice Storm Warning
Issuing Office: WFO Norman OK (KOUN)
Current time: 2200 UTC on January 27, 2004
Event being upgraded (Product): Winter Storm Watch to Ice Storm Warning (WSW)
Watch and Warning valid for: Oklahoma Zones 6 thru 8, 11 thru 24, and 33 thru 36; and Texas Zone 83
Product expiration time: 1100 UTC on January 28, 2004
Event Tracking Numbers: 4th Winter Storm Watch and 3rd Ice Storm Warning of the year issued by KOUN
Expected Event Beginning and Ending times of the
Winter Storm Watch: 0500 UTC on January 28 and 0000 UTC on January 29, 2004
Ice Storm Warning: 0500 UTC on January 28 and 0000 UTC on January 29, 2004

```
OKZ006>008-011>024-033>036-TXZ083-281100-              (UGC)
/O.UPG.KOUN.WS.A.0004.040128T0500Z-040129T0000Z/       (P-VTEC 1)
/O.NEW.KOUN.IS.W.0003.040128T0500Z-040129T0000Z/       (P-VTEC 2)
```

Explanation: Two P-VTEC strings are required to upgrade the Winter Storm Watch to an Ice Storm Warning. The first (*UPG*) P-VTEC string indicates the event that is being upgraded (the Watch), and the second (*NEW*) string indicates the new upgraded event (the Warning). Since the Watch valid time had not yet begun when the action to upgrade it to a Warning occurred, the actual beginning valid time of the Watch

is encoded in the first P-VTEC string. The UGC string shows the various OK and TX zones and the product expiration time.

Example (2) - Downgrade from Warning to Advisory

Scenario: Downgrade an Ice Storm Warning to a Freezing Rain Advisory
Issuing Office: WFO Norman OK (KOUN)
Current time: 1100 UTC on January 28, 2004
Event being downgraded (Product): Ice Storm Warning to Freezing Rain Advisory (WSW)
Warning and Advisory valid for: Oklahoma Zones 6 thru 8, 11 thru 24, and 33 thru 36; and Texas Zone 83
Product expiration time: 1700 UTC on January 28, 2004
Event Tracking Numbers: 3rd Ice Storm Warning and 5th Freezing Rain Advisory of the year issued by KOUN
Expected (*or actual*) Event Beginning and Ending times of the
Ice Storm Warning: *0500 UTC on January 28* and 0000 UTC on January 29, 2004 (*1100 UTC on January 28*)
Freezing Rain Advisory: *1100 UTC on January 28* and 0000 UTC on January 29, 2004

```
OKZ006>008-011>024-033>036-TXZ083-281700-                (UGC)
/O.CAN.KOUN.IS.W.0003.000000T0000Z-040129T0000Z/         (P-VTEC 1)
/O.NEW.KOUN.ZR.Y.0005.040128T1100Z-040129T0000Z/         (P-VTEC 2)
```

Explanation: Two P-VTEC strings are required to downgrade the Ice Storm Warning to a Freezing Rain Advisory. The first (*CAN*) P-VTEC string indicates the product that is being downgraded or canceled (the Warning), and the second (*NEW*) string indicates the new product being issued (the Advisory). Since the Warning valid time had already begun when the action to downgrade it to an Advisory occurred, the beginning valid time of the Warning is encoded as all zeros in the first P-VTEC string. The UGC string shows the various OK and TX zones and the product expiration time.

Example (3) - Replace Ice Storm Warning with Winter Storm Warning

Scenario: Replace an Ice Storm Warning with a Winter Storm Warning
Issuing Office: WFO Norman OK (KOUN)
Current time: 0530 UTC on January 28, 2004
Event being replaced (Product): Ice Storm Warning with Winter Storm Warning (WSW)
Warning valid for: Oklahoma Zones 6 thru 8, 11 thru 24, and 33 thru 36; and Texas Zone 83
Product expiration time: 1200 UTC on January 28, 2004
Event Tracking Numbers: 3rd Ice Storm Warning and 6th Winter Storm Warning of the year issued by KOUN
Expected (*or actual*) Event Beginning and Ending times of the
Ice Storm Warning: *0500 UTC on January 28* and 0000 UTC on January 29, 2004 (*0530 UTC on January 28*)
Winter Storm Warning: *0530 UTC on January 28* and 0000 UTC on January 29, 2004

```
OKZ006>008-011>024-033>036-TXZ083-281200-                (UGC)
/O.CAN.KOUN.IS.W.0003.000000T0000Z-040129T0000Z/         (P-VTEC 1)
/O.NEW.KOUN.WS.W.0006.040128T0530Z-040129T0000Z/         (P-VTEC 2)
```

Explanation: Two P-VTEC strings are required to replace the Ice Storm Warning with a Winter Storm Warning. The first (*CAN*) P-VTEC string indicates the product that is being replaced (the Ice Storm Warning), and the second (*NEW*) string indicates the new product being issued (Winter Storm Warning). Since the Ice Storm valid time had already begun when the action to change it to a Winter Storm occurred, the beginning valid time of the Ice Storm is encoded as all zeros in the first P-VTEC string. The UGC string shows the various OK and TX zones and the product expiration time.

Example (4) - Corrected Upgrade of Gale Warning to Storm Warning

Scenario: Correction to an Upgrade of a Gale Warning to a Storm Warning
Issuing Office: WFO Seattle WA (KSEW)
Current time: 2000 UTC on February 16, 2004
Events (Product): Gale and Storm Warnings (CWF)
Warning being upgraded: Gale Warning to Storm Warning
Forecast valid for: Eastern North Pacific Marine Zone 133
Product expiration time: 2300 UTC on February 16, 2004
Event Tracking Numbers: 7th Gale Warning and 4th Storm Warning of the year issued by KSEW
Expected (*or actual*) Event Beginning and Ending times of the
Gale Warning: *1100 UTC on February 16* and 0000 UTC on February 18, 2004 (*2000 UTC on February 16*)
Storm Warning : *2000 UTC on February 16* and 0000 UTC on February 18, 2004

```
PZZ133-162300-                                          (UGC)
/O.UPG.KSEW.GL.W.0007.000000T0000Z-040218T0000Z/        (P-VTEC 1)
/O.COR.KSEW.SR.W.0004.040216T2000Z-040218T0000Z/        (P-VTEC 2)
```

Explanation: This is an example of a correction (for a non-VTEC and non-UGC error or omission in the product segment) issued after a Gale Warning was upgraded to a Storm Warning. The COR action code appears only with the second P-VTEC string, replacing the NEW that was there in the original upgrade.

3.2 Extend Event in Area, Time, or Both (EXA, EXT, EXB). Here are examples showing the use of the extend area and time codes.

Example (1) - Extend Event in Area (EXA)

Scenario: Add counties to an existing Winter Storm Watch
Issuing Office: WFO Bismarck ND (KBIS)
Current time: 2200 UTC on November 23, 2004
Event (Product): Winter Storm Watch (WSW)
Product valid for: North Dakota Zones 18, and 31 thru 33
Product expiration time: 0400 UTC on November 24, 2004
Event Tracking Number: 12th Winter Storm Watch of the year issued by KBIS
Segment 1
Valid for: North Dakota Zones 32 and 33
Expected Event Beginning and Ending times: 0500 UTC on November 24 and 0000 UTC on November 25, 2004
Segment 2
Valid for: North Dakota Zones 18 and 31
Expected Event Beginning and Ending times: 0500 UTC on November 24 and 0000 UTC on November 25, 2004

(segment 1 of 2 within WSW product - new area in watch)

```
NDZ032>033-240400-                                      (UGC)
/O.EXA.KBIS.WS.A.0012.041124T0500Z-041125T0000Z/        (P-VTEC)
```

(segment 2 of 2 within WSW product - continued area in watch)

```
NDZ018-031-240400-                                      (UGC)
/O.CON.KBIS.WS.A.0012.041124T0500Z-041125T0000Z/        (P-VTEC)
```

Explanation: Two segments are used, one with the EXA action code for the newly added area, and one with the CON action code for the area being continued. Since the Watch conditions are expected to begin

after the product issuance, the Event beginning times are explicitly coded in both P-VTEC strings. Both segments maintain the same ETN (of *0012*) as the original product segment. If another follow-up product is issued later, and the entire Watch area is being continued with no time changes, the entire area will appear in one segment with the CON action code.

Example (2) - Extend Event in Time (EXT)

Scenario: Extend the Event Ending Time of a Blowing Dust Advisory
Issuing Office: WFO Tucson AZ (KTWC)
Current time: 1600 UTC on May 12, 2004
Event (Product): Blowing Dust Advisory (NPW)
Advisory valid for: Arizona Zones 33 thru 35
Product expiration time: 2200 UTC on May 12, 2004
Event Tracking Number: 3rd Blowing Dust Advisory of the year issued by KTWC
Expected (*or actual*) Event Beginning and Ending times of the
Original Advisory: *1200 UTC* and 1800 UTC on May 12, 2004
Extended Advisory: *1200 UTC* and 2200 UTC on May 12, 2004

```
AZZ033>035-122200-                                    (UGC)
/O.EXT.KTWC.DU.Y.0003.000000T0000Z-040512T2200Z/      (P-VTEC)
```

Explanation: Only one P-VTEC string is needed to change (extend or contract) the valid time of an event. The only way to determine how the valid time has changed is to compare the P-VTEC string from the original (or previous) Advisory with the same ETN (of 0003) with the P-VTEC string from this product. Since the Advisory event has already begun, the beginning event time is encoded as all zeros in the P-VTEC string.

Example (3) - Extend Portion of Event in Time (EXT)

Scenario: Extend the Event Ending Time of a Portion of an Excessive Heat Warning
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 2000 UTC on August 11, 2005
Event (Product): Excessive Heat Warning (NPW)
Product valid for: Pennsylvania Zones 54, 55, 60 thru 62, 67 thru 71, New Jersey Zones 1, 7 thru 10, 12, 13, 15 thru 23, and 27, Delaware Zones 1 thru 3, and Maryland Zones 8, 12, 15, 19, and 20
Product expiration time: 0200 UTC on August 12, 2005
Event Tracking Number: 7th Excessive Heat Warning of the year issued by KPHI
Segment 1
Valid for: Pennsylvania Zones 67 thru 71; New Jersey Zones 9, 10, 12, 13, 15 thru 23, and 27; Delaware Zones 1 thru 3; and Maryland Zones 8, 12, 15, 19, and 20
Expected (*or actual*) Event Beginning and Ending times of the Warning: *1600 UTC on August 11, 2005* and 0100 UTC on August 13, 2005
Segment 2
Valid for: Pennsylvania Zones 54, 55, and 60 thru 62; New Jersey Zones 1, 7, and 8
Expected (*or actual*) Event Beginning and Ending times of the Warning: *1600 UTC on August 11, 2005* and 0200 UTC on August 12, 2005

(segment 1 of 2 within NPW product - extended portion of warning)

```
PAZ067>071-NJZ009-010-012-013-015>023-027-DEZ001-
002-003-MDZ008-012-015-019-020-120200-                (UGC)
/O.EXT.KPHI.EH.W.0007.000000T0000Z-050813T0100Z/      (P-VTEC)
```

(segment 2 of 2 within NPW product - continued [not extended] portion of warning)
PAZ054-055-060>062-NJZ001-007-008-120200- (UGC)
/O.CON.KPHI.EH.W.0007.000000T0000Z-050812T0200Z/ (P-VTEC)

Explanation: An Excessive Heat Warning had been issued earlier for most of the WFO Mount Holly forecast area. At a time before the original Event Ending Time (0200 UTC on August 12), the forecaster decides to extend only a portion of the event through tomorrow. The forecaster expects a cooler airmass to spread into the northwestern zones overnight but then stall out. Since the original event is several hours from ending, it is too early to use the EXP action code on the non-extended portion (see Section 2.2.2). Thus, a partial extension in time is used. This requires two segments, with an EXT action code in the portion being extended and a CON action code in the portion not being extended. Both segments continue to share the same ETN (of *0007*), since they were created as one segment and still share the same phenomenon and significance codes.

Example (4) - Extend Event in Both Area and Time (EXB)

Scenario: Add zones to and extend Event Ending Time of a Heavy Snow Warning
Issuing Office: WFO Boise ID (KBOI)
Current time: 1145 UTC on March 16, 2004
Event (Product): Heavy Snow Warning (WSW)
Product valid for: Idaho Zones 1 thru 8
Product expiration time: 1800 UTC on March 16, 2004
Event Tracking Number: 4th Heavy Snow Warning of the year issued by KBOI
Segment 1
Valid for: Idaho Zones 6 thru 8
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0600 UTC* and 1800 UTC on March 16, 2004
Segment 2
Valid for: Idaho Zones 1 thru 5
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0600 UTC* and 1800 UTC on March 16, 2004

(segment 1 of 2 within WSW product - new area in warning)
IDZ006>008-161800- (UGC)
/O.EXB.KBOI.HS.W.0004.000000T0000Z-040316T1800Z/ (P-VTEC)

(segment 2 of 2 within WSW product - area included in previous issuance)
IDZ001>005-161800- (UGC)
/O.EXT.KBOI.HS.W.0004.000000T0000Z-040316T1800Z/ (P-VTEC)

Explanation: Two segments are used, one with the EXB action code for the newly issued area, and another with the EXT action code for the continued area (with the updated beginning and/or ending time). Since the Warning conditions have already begun, the Event Beginning Date/Time Group is coded with zeros in both segments. Both segments maintain the same ETN (of 0004) as the original product segment. If another follow-up product is issued, and the entire Warning area is being continued with no other time changes, the entire area will appear in one segment with the CON action code.

3.3 Multiple P-VTEC Events Contained in a Single Product or Product Segment. Most event-driven products or product segments will contain either one or two P-VTEC strings (one P-VTEC string if there is a single event described in the particular product or segment, or two P-VTEC strings for upgrade, downgrade or replacement actions of an event). However, for Routine Marine Forecasts (as outlined in Section 3.5.1) and for some mainly long-duration event-

driven W/W/A products, there will be times when more than one P-VTEC event is contained in a single product or product segment.

In Routine Marine forecasts (see Section 3.5.1). The P-VTEC strings will be sorted by the following criteria:

a. First, in chronological order by Event Beginning Time. An exception is made for Upgrade and Downgrade/Replacement situations (see Section 3.1) where the P-VTEC strings containing the UPG and NEW (for upgrade) or CAN and NEW (for downgrade or replacement) action codes will appear together, based on the Event Beginning Time of the NEW string of the upgrade/downgrade/replacement.

b. If two or more P-VTEC strings begin at the same time or are valid at the issuance of the product (with the exception of Upgrade and Downgrade/Replacement situations mentioned above), then by P-VTEC action code in the following order: CAN, UPG, NEW, EXB, EXA, EXT, ROU, CON. (The EXP action code is not used in Routine Marine products.)

c. If two or more P-VTEC strings contain the same action code, then by significance level (W, Y, A, S). (The 'F' significance level appears only with the ROU action code, of which there would only be one included in any particular forecast segment.)

d. If two or more P-VTEC strings contain the same action code, significance level, and Event Beginning Time, then by phenomenon code (in alphabetical order).

In all other products containing VTEC, the P-VTEC strings will be sorted by the following criteria:

a. First, by P-VTEC action code in the following order: CAN, EXP, UPG, NEW, EXB, EXA, EXT, CON. (Other than Routine Marine Forecasts [see above], the ROU action code appears only in Flood Warnings for Forecast Points, and when it does, it will be by itself.) An exception is made for Upgrade and Downgrade/Replacement situations (see Section 3.1) where the P-VTEC strings containing the UPG and NEW (for upgrade) or CAN and NEW (for downgrade or replacement) action codes will appear together, regardless of any other P-VTEC strings which appear in that segment.

b. If two or more P-VTEC strings contain the same action code, then by significance level (W, Y, A, S).

c. If two or more P-VTEC strings contain the same action code and significance level, then in chronological order by Event Beginning Time.

d. If two or more P-VTEC strings contain the same action code, significance level, and Event Beginning Time, then by phenomenon code (in alphabetical order).

Any required H-VTEC string(s) will appear immediately after the corresponding P-VTEC string.

3.4 Severe Thunderstorm and Tornado Products. P-VTEC coding will appear in all Severe Thunderstorm and Tornado Warning products including follow-up statements, and in two Severe Thunderstorm/Tornado Watch Products: the national Watch Outline Update Message (WOU) issued by the SPC; and the local Watch County Notification (WCN) issued by WFOs with forecast/warning area of responsibility included in the WOU product. The P-VTEC string used in a WOU and all WCNs in one convective watch will share the same ETN, Phenomenon and Significance Level, and Beginning and Ending Event Times (except that once the watch begins, any follow-up WCNs would encode their Beginning Event Time as all zeros). The WOU will use the Storm Prediction Center's ID (KWNS), while each WCN will use the station ID of the issuing WFO.

Outside the contiguous United States, WFOs will issue WCNs without a WOU from SPC. These WCNs will use sequential ETNs for that WFO.

See NWSI 10-512, National Severe Weather Products Specification, and NWSI 10-511, WFO Severe Weather Products Specification, for comprehensive details on the WOU and WCN, respectively.

3.4.1 Watch Outline Update (WOU) Product. Following is an example of a WOU issued by SPC. Note the ETN is 5. This ETN will be used by all affected WFOs in their WCN products.

Scenario: Initial Tornado Watch issuance by SPC
Issuing Office: Storm Prediction Center (KWNS)
Current time: 1125 UTC on February 5, 2004
Event (Product): Tornado Watch (WOU)
Watch valid for: Louisiana Parishes 1, 3, 5, 7, 9, 11, 19, 23, 25, 29, 33, 37, 39, 41, 43, 45, 47, 53, 55, 59, 63, 65, 77, 79, 91, 93, 95, 97, 99, 101, 105, 107, 113, 117, 121 and 125; Mississippi Counties 1, 5, 21, 29, 31, 37, 49, 63, 65, 77, 85, 89, 91, 101, 113, 121, 123, 127, 129, 147, 149 and 157; Texas Counties 245 and 361; and Gulf of Mexico Marine Zones 450, 475, and 530
Product expiration time: 1800 UTC on February 5, 2004
Event Tracking Number: 5th Watch of the year issued by the SPC (this one for Tornado)
Expected Event Beginning and Ending times of the watch: 1140 UTC and 1800 UTC on February 5, 2004

(segment 1 of 4 within WOU product - Louisiana parishes in watch)

```
LAC001-003-005-007-009-011-019-023-025-029-033-037-
039-041-043-045-047-053-055-059-063-065-077-079-091-
093-095-097-099-101-105-107-113-117-121-125-051800-    (UGC)
/O.NEW.KWNS.TO.A.0005.040205T1140Z-040205T1800Z/       (P-VTEC)
```

(segment 2 of 4 within WOU product - Mississippi counties in watch)

```
MSC001-005-021-029-031-037-049-063-065-077-085-089-
091-101-113-121-123-127-129-147-149-157-051800-        (UGC)
/O.NEW.KWNS.TO.A.0005.040205T1140Z-040205T1800Z/       (P-VTEC)
```

```
(segment 3 of 4 within WOU product - Texas counties in watch)
TXC245-361-051800-                                          (UGC)
/O.NEW.KWNS.TO.A.0005.040205T1140Z-040205T1800Z/            (P-VTEC)

(segment 4 of 4 within WOU product - Marine zones in watch)
GMZ450-475-530-051800-                                      (UGC)
/O.NEW.KWNS.TO.A.0005.040205T1140Z-040205T1800Z/            (P-VTEC)
```

Explanation: Each segment in the WOU product uses the same ETN (of *0005*), and each is coded as *NEW* (from the P-VTEC strings). Subsequent WCN products issued by any of the WFOs impacted by the watch (see Section 3.4.2) will use the same ETN (of *0005*), as well as the same phenomenon (*TO*) and significance level (*A*).

3.4.2 Watch County Notification (WCN) Product. The WCN product issued by affected WFOs will handle all aspects for their respective forecast/warning area of responsibility (issuance, clearing counties, continuing counties, canceling, expiration) of Severe Thunderstorm Watch or Tornado Watch issuances by the SPC.

In WCN products from offices in the contiguous United States, the SPC WOU watch number will be used as the ETN. This allows WCN products from adjacent WFOs to have the same ETN for the same watch. WCN products from offices outside of the contiguous United States will use sequential ETNs for that WFO.

Following is an example of a WCN product, an initial issuance of a Tornado Watch product by WFO Lake Charles Louisiana. An additional WCN example which illustrates the clearing of a portion of a Severe Thunderstorm Watch is in Appendix D. For information on other variations of the WCN product, such as "Clearing remaining counties from a watch," "Second watch issued while first watch remains in effect," "Extending a watch's expiration time for selected counties," see NWSI 10-511.

Example - WCN Product for Initial Issuance of a Tornado Watch

Scenario: Initial WCN issuance (see Section 3.4.1 for the associated WOU from the SPC)
Issuing Office: WFO Lake Charles LA (KLCH)
Current time: 1135 UTC on February 5, 2004
Event (Product): Tornado Watch (WCN)
Watch valid for: Louisiana Parishes 1, 3, 9, 11, 19, 23, 39, 45, 53, 55, 79, 97, 99, 101, and 113; Texas Counties 245 and 361; and Gulf of Mexico Marine Zones 450 and 475
Product expiration time: 1800 UTC on February 5, 2004
Event Tracking Number: 5th Watch of the year issued by the SPC (this one for Tornado)
Expected Event Beginning and Ending times of the watch: 1140 UTC and 1800 UTC on February 5, 2004

```
LAC001-003-009-011-019-023-039-045-053-055-079-097-
099-101-113-TXC245-361-GMZ450-475-051800-                   (UGC)
/O.NEW.KLCH.TO.A.0005.040205T1140Z-040205T1800Z/            (P-VTEC)
```

Explanation: The P-VTEC string of this initial WCN product uses the same ETN, phenomenon, significance level, and beginning and ending times as the associated SPC WOU product (from the P-VTEC string), although it contains only the counties and marine zones in the WFO Lake Charles forecast area that are included in the watch (in the UGC string).

3.4.3 Severe Weather Statement (SVS) Product. The SVS product is used to provide follow-up information on a Tornado Warning or Severe Thunderstorm Warning. The SVS uses the phenomenon, significance, ETN, and event ending time from the original warning.

Example - Initial Tornado Warning and Follow-up SVS

Product 1

Scenario: Initial Warning issuance
Issuing Office: WFO Denver CO (KBOU)
Current time: 1400 UTC on May 25, 2004
Event (Product): Tornado Warning (TOR)
Warning valid for: Colorado Counties 75, 87, and 121
Product expiration time: 1445 UTC on May 25, 2004
Event Tracking Number: 6th Tornado Warning of the year issued by KBOU
Expected (*or actual*) Event Beginning and Ending times of the Warning: *1400 UTC* and 1445 UTC on May 25, 2004

```
COC087-251445-                                          (UGC)
/O.NEW.KBOU.TO.W.0006.0405251400Z-040525T1445Z/         (P-VTEC)
```

Explanation: The phenomenon, significance, ETN and event ending time from this warning will be used in any follow-up Severe Weather Statement issued concerning this warning.

Product 2

Scenario: Follow-up Statement - Cancel warning for one county and continue warning for the other two.
Issuing Office: WFO Denver CO (KBOU)
Current time: 1426 UTC on May 25, 2004
Event (Product): Tornado Warning (SVS)
Product valid for: Colorado Counties 75, 87, and 121
Product expiration time of the
- Canceled segment (segment 1): 1436 UTC on May 25, 2004
- Continued segment (segment 2): 1445 UTC on May 25, 2004

Event Tracking Number: 6th Tornado Warning of the year issued by KBOU
Segment 1
- Valid for: Colorado County 87
- Expected (*or actual*) Event Beginning and Ending times of the Warning: *1400 UTC* and 1445 UTC (*1436 UTC*) on May 25, 2004

Segment 2
- Valid for: Colorado Counties 75 and 121
- Expected (*or actual*) Event Beginning and Ending times of the Warning: *1400 UTC* and 1445 UTC on May 25, 2004

(segment 1 of 2 within SVS product - canceled part of warning)

```
COC087-251436-                                          (UGC)
/O.CAN.KBOU.SV.W.0006.000000T0000Z-040525T1445Z/        (P-VTEC)
```

(segment 2 of 2 within SVS product - continued rest of warning)

```
COC075-121-251445-                                      (UGC)
/O.CON.KBOU.SV.W.0006.000000T0000Z-040525T1445Z/        (P-VTEC)
```

Explanation: This segmented follow-up Severe Weather Statement uses the same phenomenon (*TO*), significance (*W*), ETN (*0006*), and event ending time (1445 UTC) as the original Tornado Warning.

3.4.4 Combined Severe Thunderstorm and Flash Flood Warning (FFW) Product. Since this product contains hydrologic information and H-VTEC coding, it is discussed in Section 5.3.

3.5 Marine and Coastal Weather Products. The following subsections provide illustration and interpretation for various marine products. Note that two sequences of complete marine and coastal products are found in Appendix D, Section 3.d. These sequences show the flow of events within a particular weather/marine system, e.g., from watch to warning to statement (to provide follow-up information, and/or to cancel the event or to let it expire).

3.5.1 Routine Marine Forecast Products. There are four routine marine forecast products that contain W/W/A information and eventually P-VTEC codes. VTEC is scheduled to be tested and implemented in the Coastal Water Forecast (CWF) and Great Lakes Nearshore Forecast (NSH) during 2005, and in the Offshore Waters Forecast (OFF) and Great Lakes Open Lake Forecast (GLF) at a later time. For each of these products, at least one P-VTEC string will appear in each product segment. If there are no P-VTEC strings for any warnings, watches, or advisories for a segment (including CAN), then that segment will contain a single P-VTEC string with the ROU action code (see part a below). See NWSI 10-310, Coastal Marine Forecast Services; 10-311, Offshore, NAVTEX, and High Seas Marine Forecast Services; and 10-312, Great Lakes Marine Services, for information on these routine marine products.

a. ROU action code. For forecast segments without a W/W/A in effect or being cancelled, a single P-VTEC string will appear in the segment. If will have an action code of ROU, a phenomena code of MA, a significance code of F, an ETN of 0000, and will have event beginning and ending times of all zeros. Here are two examples illustrating use of the ROU in routine marine forecasts.

Example - Nearshore Forecast (NSH) Product Initially Without a W/W/A, then Small Craft Advisory Issued

Product 1

Scenario: Routine Marine Forecast issuance with no W/W/As through the forecast period
Issuing Office: WFO North Central Lower Michigan (KAPX)
Current time: 1530 UTC on December 22, 2004
Event (Product): None (NSH)
Forecast valid for: Lake Huron Marine Zones 347 and 348
Product expiration time: 2130 UTC on December 22, 2004
Event Tracking Number: Zero, as no W/W/As are in effect through the entire forecast
Expected (*or actual*) Event Beginning and Ending times of the Forecast: *1530 UTC on December 22* and 1100 UTC on December 24, 2004

```
LHZ347-348-222130-                                          (UGC)
/O.ROU.KAPX.MA.F.0000.000000T0000Z-000000T0000Z/            (P-VTEC)
```

Explanation: There are no W/W/As in effect through the entire two-day forecast period (1100 UTC on December 24th), so the ROU action code is used in the single P-VTEC string. The ETN for a ROU action code, as well as the event beginning and ending times, are always set to zeros.

Product 2

Scenario: Small Craft Advisory Raised with Next Forecast Issuance
Issuing Office: WFO North Central Lower Michigan (KAPX)
Current time: 2130 UTC on December 22, 2004
Event (Product): Small Craft Advisory (NSH)
Forecast valid for: Lake Huron Marine Zones 347 and 348
Product expiration time: 0330 UTC on December 23, 2004
Event Tracking Number: 17th Small Craft Advisory of the year issued by KAPX
Expected Event Beginning and Ending times of the Advisory: 0900 UTC on December 23 and 2300 UTC on December 23, 2004

```
LHZ347-348-230330-                                        (UGC)
/O.NEW.KAPX.SC.Y.0017.041223T0900Z-041223T2300Z/           (P-VTEC)
```

Explanation: With the next forecast issuance, a Small Craft Advisory is raised, valid from 0900 UTC to 2300 UTC on December 23rd. Since there is now a P-VTEC string pertaining to an event, the P-VTEC string with the ROU action code is no longer included.

b. Storm Prediction Center (SPC) Watches in Routine Marine Forecasts. When the SPC issues Severe Thunderstorm or Tornado Watches that include marine forecast areas, the watches are headlined in the routine marine forecasts (except for the OFF product which does not include headlines for severe weather watches) and a P-VTEC string is added to the affected forecast segment(s). The information for the P-VTEC string will match that found in the WFOs WCN product, including the ETN and the beginning and ending event times.

Example - CWF Product with a Tornado Watch issued by the SPC

Scenario: Routine Marine Forecast updated because of new Watch
Issuing Office: WFO Miami FL (KMFL)
Current time: 1700 UTC on May 27, 2004
Event (Product): Tornado Watch (CWF)
Forecast valid for: Western North Atlantic Marine Zones 650 and 651
Product expiration time: 2030 UTC on May 27, 2004
Event Tracking Number: 392nd Watch of the year issued by the SPC (this one for Tornado)
Expected (*or actual*) Event Beginning and Ending times of the Watch: *1700 UTC* and 2300 UTC on May 27, 2004

```
AMZ650-651-272030-                                        (UGC)
/O.NEW.KMFL.TO.A.0392.040527T1700Z-040527T2300Z/           (P-VTEC)
```

Explanation: As with the examples in Section 3.4.2, a severe weather watch issued by the SPC will maintain the ETN from the original SPC watch product (WOU) (in P-VTEC string 1). After the watch expires at 2300 UTC, no other W/W/As are in effect during the forecast periods, so no other P-VTEC strings appear.

c. Tropical Storm and Hurricane Watches and Warnings in Routine Marine Forecasts. When the Tropical Prediction Center (TPC) issues Tropical Storm or Hurricane Watches and Warnings for the Atlantic Basin which include the coastal waters of the mainland United States, Puerto Rico and the U.S. Virgin Islands, experimental P-VTEC string(s) (using the 'X' Fixed Identifier) will be included in

the appropriate Coastal Waters forecast(s). The information for the P-VTEC string will come from the Tropical Cyclone Product for VTEC (TCV), including the ETN. See Section 3.6 for more information on the TCV. The Office ID included in any tropical P-VTEC string will be that of the WFO issuing the CWF.

Example - CWF Product with a Tropical Storm Watch issued by the TPC

Scenario: Routine Marine Forecast changed because of new Watch
Issuing Office: WFO Wilmington NC (KILM)
Current time: 2100 UTC on September 23, 2005
Events (Product): Small Craft Advisory and Tropical Storm Watch (CWF)
Forecast valid for: Western North Atlantic Marine Zones 250, 252, 254, 256
Product expiration time: 0900 UTC on September 24, 2005
Event Tracking Numbers: 14th Small Craft Advisory for Seas issued by KILM, 4th Tropical System of the year for the Atlantic Basin issued by the TPC (this one currently for a Tropical Storm Watch)
Expected (*or actual*) Event Beginning and Ending times of the
Small Craft Advisory: *2100 UTC on September 22* and 0300 UTC on September 25, 2005 (*2100 UTC on September 23, 2005*)
Tropical Storm Watch: *2100 UTC on September 23, 2005* and Until Further Notice

```
AMZ250-252-254-256-240900-                              (UGC)
/O.CAN.KILM.SW.Y.0014.000000T0000Z-050925T0300Z/        (P-VTEC 1)
/O.NEW.KILM.TR.A.1004.050923T2100Z-000000T0000Z/        (P-VTEC 2)
```

Explanation: TPC has issued a Tropical Storm Watch for WFO Wilmington's Coastal Waters for the fourth system of the year in the Atlantic Basin, "Dennis". Although the KILM office ID is used in the P-VTEC string, it maintains the same ETN as was used in the original TCV product (see Section 3.6) from TPC (*1004 - 1* for the Atlantic Basin and *004* for the fourth tropical system of the year in that basin). The Watch is in effect beginning at 2100 UTC on September 23rd. Since all of TPCs Watches and Warnings are open-ended, the event ending time is coded as zeros (P-VTEC string 2). The Small Craft Advisory for Seas which had been in effect has been cancelled.

3.5.2 Event-Driven Marine and Coastal Products. The event-driven marine and coastal products which contain W/W/A information and P-VTEC coding (Coastal Flood Watch/Warning [CFW], High Surf Advisory [CFW], Lakeshore Flood Watch/Warning [CFW], Special Marine Warning [SMW], and any Marine Weather Statement [MWS] issued as a follow-up to an SMW) follow the same rules as other event-driven products which contain VTEC coding. Some examples are given in Appendix D, Section 3. See NWSI 10-313; 10-314, Marine Weather Statements; and 10-320, Coastal/Lakeshore Flood Services, for additional information on event-driven marine products.

3.5.3 Marine Weather Statement (MWS) Products. In addition to their use as follow-ups to Special Marine Warnings, Marine Weather Statements are also used to convey other marine weather information to NWS customers and partners. When used for these non-severe purposes, and no watch, warning, or advisory headlines are included, the MWS will use a P-VTEC phenomenon code of MA and a significance code of S. See NWSI 10-314 for additional information on the uses of Marine Weather Statements.

3.5.4 Coastal Flood Statement (CFW) and Lakeshore Flood Statement (CFW) Products. In addition to their use as follow-ups to Coastal Flood Watch/Warnings (CFW) and Lakeshore Flood Watch/Warnings (CFW), respectively, Coastal Flood Statements and Lakeshore Flood Statements are also used to convey other information to NWS customers and partners. When used for these informational purposes, the statement will use a P-VTEC phenomenon code of CF (for Coastal Flood) or LS (for Lakeshore Flood) and a significance code of S. See NWSI 10-320 for additional information on the uses of Coastal Flood Statements and Lakeshore Flood Statements.

3.6 Tropical Cyclone Product for VTEC (TCV). The TCV provides VTEC strings for tropical storm and hurricane watch/warnings only for the Atlantic basin, including the Caribbean and Gulf of Mexico. The TCV will also include the UGC for the appropriate coastal public counties and coastal waters marine zones, and the respective latitudes and longitudes for the break points that bracket the watches/warnings.

The TCV will be issued as an experimental product for the 2005 tropical cyclone season. If testing is successful and positive feedback received, the TCV will become operational in 2006. A Product Description Document will be written for the TCV and placed on the internet at http://products.weather.gov. A Service Change Notice will announce the implementation date at least 120 days in advance. Updates to NWSI 10-601, Tropical Cyclone Products, and to the VTEC Web page on the Internet (http://www.nws.noaa.gov/os/vtec/) will contain additional information regarding format of the TCV product and examples of VTEC strings.

4. Hydrologic H-VTEC Format. The specialized H-VTEC string in hydrologic products occurs only in conjunction with, and immediately after, the P-VTEC string. The H-VTEC only follows a P-VTEC that has a Phenomena Code of FL for Flood, FA for Areal Flood, FF for Flash Flood, or HY for Hydrologic. For Flood Warnings (FLW) and follow-up Flood Statements (FLS) at specific river forecast points, and for Flash Flood Warnings where the information is known, the H-VTEC specifies the flood severity; immediate cause; timing of flood beginning, crest, and end; and how the flood compares to the flood of record. For Flood Watches (FFA), Areal Flood Warnings (FLW), Flash Flood Warnings (FFW) and follow-up Flash Flood Statements (FFS), and Areal Flood Advisories issued under the Flood Statement identifier (FLS), H-VTEC string will have an entry for immediate cause (IC) but default entries of zeros or capital letter Os for the remaining elements.

In all hydrologic products, the coding of the P-VTEC string will follow the rules in Sections 2 and 3.

4.1 Generic Structure of H-VTEC Elements.

/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/

The “nwsli”, “s,” “ic,” and “fr” describe properties of the flood event and the yymmddThhnnZ$_B$.yymmddThhmmZ$_C$.yymmddThhmmZ$_E$ provides the timing in UTC.

Event Group		Date/Time Group	
nwsli -	Site Identifier	**yy** -	Year
s -	Flood Severity	**mm** -	Month
ic -	Immediate Cause	**dd** -	Day
fr -	Flood Record	**T** -	Fixed Time Indicator
		hh -	Hour in UTC
		nn -	Minute in UTC
		Z_B -	Fixed UTC Flood Beginning Date/Time Indicator
		Z_C -	Fixed UTC Flood Crest Date/Time Indicator
		Z_E -	Fixed UTC Flood Ending Date/Time Indicator

Notes:
(1) The "T" in the Date/Time Groups is a fixed Time Indicator, with the following "hh" and "nn" being the hours and minutes in UTC, respectively.
(2) The Z_B, Z_C, and Z_E are the generic fixed UTC indicators for the flood beginning, crest, and ending times. Note that the subscripts are not used in any actual VTEC strings in examples.
(3) The forward slash ('/') and period ('.') in the format are delimiters that separate fields for ease in decoding.

4.2 H-VTEC Element Definitions/Explanations.

4.2.1 nwsli (Site Identifier). Identifies the specific location for which the H-VTEC string applies. For areal flood products, this element is coded as 00000 (five zeros).

4.2.2 **s** (Flood Severity). Identifies the severity of the flood (for main stem rivers). For Flood Watches, Areal Flood Warnings, and for Flash Flood Warnings where there are no observations and/or forecasts for specific locations in the warning area, this element is coded as 0 (zero). See Appendix B for Flood Severity codes.

4.2.3 **ic** (Immediate Cause). Identifies the immediate cause of the flood. See Appendix B for Immediate Cause codes.

4.2.4 **yymmddThhnnZ_B.yymmddThhnnZ_C.yymmddThhnnZ_E** (Flood Timing). These groups, respectively, identify the actual (or forecast) beginning, crest, and end of the flooding at the forecast point by year, month, day, hour, and minute in UTC. For Flood Watches, Flood Statement products issued as Flood Advisories, Areal Flood Warning events, and for Flash Flood Warning events where there are no observations and/or forecasts for specific locations in the warning area, these groups are coded with zeros (000000T0000Z).

4.2.5 **fr** (Flood Record Status). Identifies how the flood compares to the flood of record. For Flood Watches, Areal Flood Warnings, and for Flash Flood Warnings where there are no observations and/or forecasts for specific locations in the warning area, this element is coded as OO (two letter Os). See Appendix B for the Flood Record Status codes.

4.2.6 H-VTEC Flood Beginning Time versus P-VTEC Event Beginning Time. In Flood Warnings for forecast points, the H-VTEC Flood Beginning Time reflects the time that the forecast point is expected to reach (or actually did reach) flood stage while the P-VTEC Event Beginning Time reflects the time when the Flood Warning event begins. These two times, when not encoded with zeros, are generally the same, except when flooding begins before an initial Flood Warning is issued. In that case, the H-VTEC Flood Beginning Time will be encoded with the time flooding began (in the past) and the P-VTEC Event Beginning Time will be encoded with the time the warning is issued (the present time).

4.2.7 H-VTEC Flood Ending Time versus P-VTEC Event Ending Time. In Flood Warnings for forecast points, the H-VTEC Flood Ending Time reflects the time that the forecast point is expected to fall below (or actually fell below) flood stage, while the P-VTEC Event Ending Time reflects the time when the Flood Warning event is expected to end. These times are generally the same, except when flood warnings are canceled before the most recently forecast ending time. In that case, the H-VTEC Flood Ending Time will be encoded with the time the flooding actually ended (i.e., the forecast point fell below flood stage), while the P-VTEC Event Ending Time will retain the time it had in the most recent product or segment issuance.

4.2.8 Example of a Full H-VTEC string (with associated UGC and P-VTEC strings).

Scenario: Initial issuance of a Point Flood Warning
Issuing Office: WFO Des Moines IA (KDMX)
Current time: 1530 UTC on May 9, 2003
Event (Product): Flood Warning (FLW)
Immediate Cause: Excessive Rainfall
Warning valid for: Iowa County 153, Raccoon River at Des Moines Fleur Drive (DEMI4)
Product expiration time: 0300 UTC on May 10, 2003
Event Tracking Number: 13th Flood Warning for Forecast Points of the year issued by KDMX
Expected Flood Severity: Minor
Record Flood Expected: No
Expected Event Beginning, Crest, and Ending times: 2100 UTC on May 9, 0300 UTC on May 10, and 0900 UTC on May 10, 2003

```
IAC153-100300-                                                  (UGC)
/O.NEW.KDMX.FL.W.0013.030509T2100Z-030510T0900Z/                (P-VTEC)
/DEMI4.1.ER.030509T2100Z.030510T0300Z.030510T0900Z.NO/          (H-VTEC)
```

Explanation: WFO Des Moines, IA (*KDMX* - in P-VTEC) issued a new (*NEW* - in P-VTEC) operational (*O* - in P-VTEC) FLW product for the Raccoon River at Des Moines Fleur Drive (*DEMI4* - in H-VTEC) in Iowa County 153 (*IAC153* - in UGC), for its 13th (*0013* - in P-VTEC) Flood Warning for Forecast Points (*FL.W* - in P-VTEC) of the calendar year. The flooding is expected to begin at 2100 UTC on May 9, 2003 (*030509T2100Z* - in P-VTEC and H-VTEC) and end at 0900 UTC on May 10, 2003 (*030510T0900Z* - in P-VTEC and H-VTEC), with a crest at 0300 UTC on May 10, 2003 (*030510T0300Z* - in H-VTEC). The flooding is a result of excessive rainfall (*ER* - in H-VTEC), is expected to be minor (*1* - in H-VTEC), and should not approach a record flood (*NO* - in H-VTEC). This Flood Warning product will expire at 0300 UTC on May 10th (*100300* - in UGC). Note that the event beginning and ending times are the same in the P-VTEC and H-VTEC strings. However, had the event already begun in an earlier product issuance, the event beginning time would have been encoded as zeros in just the P-VTEC string.

5. Special H-VTEC Rules, Applications and Interpretations. This section explains unique applications of H-VTEC in specific products and/or situations.

5.1 Flood Statement (FLS) and Flash Flood Statement (FFS) Products issued as Follow-ups to Warnings. One of the uses of the FLS is to provide follow-up information on Flood Warnings. The FFS is used to provide follow-up information on Flash Flood Warnings. When used in this manner, the FLS and FFS use the phenomenon, significance, and ETN of the original warning or watch.

Example - Initial Flood Warning with a Follow-up FLS

Product 1

Scenario: Initial issuance of an Areal Flood Warning
Issuing Office: WFO Anchorage (PAFC)
Current time: 0815 UTC on March 20, 2005
Event (Product): Areal Flood Warning (FLW)
Immediate Cause: Rain and Snow Melt
Warning valid for: Alaska Zone 161
Product expiration time: 2000 UTC on March 20, 2005
Event Tracking Number: 11th Areal Flood Warning of the year issued by PAFC
Expected Flood Severity: Not coded
Record Flood Expected: Not coded
Expected Event Beginning, Crest, and Ending times: 1000 UTC on March 20, 2005, not coded, and 0800 UTC on March 21, 2005

```
AKZ161-202000-                                                  (UGC)
/O.NEW.PAFC.FA.W.0011.050320T1000Z-050321T0800Z/                 (P-VTEC)
/00000.0.RS.000000T0000Z.000000T0000Z.000000T0000Z.OO/          (H-VTEC)
```

Explanation: The Event Phenomenon and Significance (FA.W - in P-VTEC) and the ETN (*0011* - in P-VTEC) will be carried in follow-up statements (issued as FLS products) to this warning (which was issued as an FLW product). Since this is an Areal Flood Warning, most of the H-VTEC string is coded with zeros (or letter Os), except for the Immediate Cause (*RS* - for Rain and Snow Melt). Zone codes are used in Flood Warning products issued in Alaska (see NWSI 10-922 for more information).

Product 2

Scenario: Follow-up Flood Statement
Issuing Office: WFO Anchorage (PAFC)
Current time: 1900 UTC on March 20, 2005
Event (Product): Areal Flood Warning (FLS)
Immediate Cause: Rain and Snow Melt
Warning valid for: Alaska Zone 161
Product expiration time: 0800 UTC on March 21, 2005
Event Tracking Number: 11th Areal Flood Warning of the year issued by PAFC
Expected Flood Severity: Not coded
Record Flood Expected: Not coded
Expected (*or actual*) Event Beginning, Crest, and Ending times: *1000 UTC on March 20, 2005*, not coded, and 0800 UTC on March 21, 2005

```
AKZ161-210800-                                                  (UGC)
/O.CON.PAFC.FA.W.0011.000000T0000Z-050321T0800Z/                (P-VTEC)
/00000.0.RS.000000T0000Z.000000T0000Z.000000T0000Z.OO/          (H-VTEC)
```

Explanation: This follow-up Flood Statement maintains the same ETN and Event Phenomenon and Significance as the original Warning. The only changes to the VTEC strings are to change the action code from NEW to CON and encode the Event Beginning Date/Time (in the P-VTEC) as zeros, since that time has passed (and the flooding has presumably begun).

5.2 Flood Statement (FLS) Product issued as a Flood Advisory. The Flood Statement product (FLS) is also used to issue Flood Advisories. These provide information on elevated river/stream flows or ponding of water in urban or other areas, when such events warrant notification of the public in a product less urgent than a warning. Flood Advisories use the P-VTEC event phenomenon of either FL or FA with a significance level of Y. While actual Event Beginning and Ending Times are encoded in the P-VTEC string of a Flood Advisory, all the times in the H-VTEC string are coded as zeros (since Flood Warning criteria are not expected). More information on Flood Statements issued as Advisories can be found in NWSI 10-922.

Example - Flood Statement Product issued for Urban and Small Stream Flooding

Scenario: Initial issuance of a Flood Advisory
Issuing Office: WFO Jacksonville FL (KJAX)
Current time: 1527 UTC on July 5, 2004
Event (Product): Flood Advisory for Urban and Small Stream Flooding (FLS)
Immediate Cause: Excessive Rainfall
Advisory valid for: Florida Counties 1 and 83
Product expiration time: 1700 UTC on July 5, 2004
Event Tracking Number: 8th Flood Advisory of the year issued by KJAX
Expected Flood Severity: None
Record Flood Expected: Not coded
Expected (*or actual*) Event Beginning, Crest, and Ending times: *1527 UTC on July 5,* not coded, and 1700 UTC on July 5, 2004

```
FLC001-083-051700-                                              (UGC)
/O.NEW.KJAX.FA.Y.0008.040705T1527Z-040705T1700Z/                (P-VTEC)
/00000.N.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/          (H-VTEC)
```

Explanation: The beginning and ending event times are encoded into the P-VTEC string to denote the times that the Advisory event (in this case ponding of water in urban areas and minor flooding in poor drainage areas) begin and end. Since Flood Warning criteria are not expected to occur, all the times in the H-VTEC string of an Advisory are coded as zeros. Likewise, the H-VTEC Flood Severity is coded as *N* (for none) since flooding is not expected, and the Flood Record Status is coded as *OO* (two letter Os) since it is an areal product.

5.3 Non-Flood Segments Included in Flood Warning for Forecast Points Product. A Flood Warning for Forecast Points (FLW) or its associated follow-up statement (FLS) may also include segments for forecast points which are below flood warning criteria. Inclusion of such segments provides a complete set of forecast and warning information for a series of points along a river reach, regardless of whether or not they are in flood. Segments for forecast points which are below product issuance criteria will use the ROU action code with a HY phenomenon code and S significance level. All the other P-VTEC and H-VTEC elements will be default values (zeros or

letter ohs) except for the Site Identifier (which identifies the forecast point) and the immediate cause.

Example - Flood Warning for Forecast Points (FLW) Containing a Non-Flood Segment

Scenario: Initial Warning issuance including a forecast point not expected to reach flood stage
Issuing Office: WFO Birmingham AL (KBMX)
Current time: 1603 UTC on December 22, 2004
Event (Product): Flood Warning for Forecast Points (FLW)
Immediate Cause: Excessive Rainfall
Product expiration time: 0000 UTC on December 23, 2004
Segment 1
- Warning valid for: Tombigbee River at the Lower Bevill Lock and Dam (AVLA1 - Alabama County 17)
- Event Tracking Number: 97th Flood Warning of the year for Forecast Points issued by KBMX
- Expected Flood Severity: Minor
- Expected Event Beginning, Crest, and Ending times of the Warning: 0300 UTC on December 24, 0900 UTC on December 25, and 0000 UTC on December 27, 2004

Segment 2
- Valid for: Tombigbee River at the Lower Gainesville Lock and Dam (GNSA1 - Alabama Counties 63 and 119)
- Event Tracking Number: None, as the forecast point is not expected to reach flood stage

Segment 3
- Warning valid for: Tombigbee River at the Lower Demopolis Lock and Dam (DLDA1 - Alabama Counties 63 and 119)
- Event Tracking Number: 98th Flood Warning of the year for Forecast Points issued by KBMX
- Expected Flood Severity: Minor
- Expected Event Beginning, Crest, and Ending times of the Warning: 1800 UTC on December 26, 1800 UTC on December 26, and 0000 UTC on December 27, 2004

(segment 1 of 3 within FLW product - new warning for the Tombigbee River at the Lower Bevill)

```
ALC107-230000-                                                  (UGC)
/O.NEW.KBMX.FL.W.0097.041224T0300Z-041227T0300Z/                 (P-VTEC)
/AVLA1.1.ER.041224T0300Z.041225T0900Z.041227T0000Z.NO/           (H-VTEC)
```

(segment 2 of 3 within FLW product - non-warning for the Tombigbee River at the Lower Gainesville)

```
ALC063-119-230000-                                              (UGC)
/O.ROU.KBMX.HY.S.0000.000000T0000Z-000000T0000Z/                 (P-VTEC)
/GNSA1.N.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/           (H-VTEC)
```

(segment 3 of 3 within FLW product - new warning for the Tombigbee River at the Lower Demopolis)

```
ALC065-091-119-230000-                                          (UGC)
/O.NEW.KBMX.FL.W.0098.041226T1800Z-041227T0000Z/                 (P-VTEC)
/AVLA1.1.ER.041226T1800Z.041226T1800Z.041227T0000Z.NO/           (H-VTEC)
```

Explanation: This new Flood Warning product from WFO Birmingham contains three forecast points along the Tombigbee River, two of which are expected to reach flood stage (segments 1 and 3) and one which is not expected to reach flood stage (segment 2). The non-flood forecast point is included for completeness, since the Lower Gainesville Lock and Dam is located between the Lower Bevill and the Lower Demopolis Locks and Dams. In that segment, the ROU action code is used with the *HY* phenomenon code and *S* significance level and an ETN of *0000*. The P-VTEC event beginning and ending times are coded as zeros. In the H-VTEC string, only the Site Identifier (*GNSA1*) and immediate cause (*ER*) are coded with non-default values. *N* is used for Flood Severity since conditions are not expected to reach

flood stage. Should later guidance suggest that the river will flood at the Lower Gainesville, an FLW would be issued for the forecast point with the *FL* action code and *W* significance level.

5.4 Combined Severe Thunderstorm and Flash Flood Warning (FFW) Product. The Combined Severe Thunderstorm and Flash Flood Warning may be issued in situations when thunderstorms produce large hail and/or damaging wind as well as flood-producing rains. This product requires the use of two P-VTEC strings, one for the Flash Flooding (with an associated H-VTEC string), and one for the Severe Thunderstorm. For more information on this product, refer to NWSI 10-922. Examples of this product are given in Appendix D, Section 4.b and 3.c.

5.5 Multiple Hydrologic P-VTEC Strings in a Single Product Segment. Normally, there will only be one Hydrologic P-VTEC string included in a single product segment, since VTEC Upgrade and downgrade operations are not performed on hydrologic products. However, when areal Flash Flood Watches are replaced by areal Flood Watches (or vice-versa), there will be paired CAN/NEW P-VTEC strings, the first (CAN) for the watch being replace, and the second (NEW) for the new watch being issued. In such a case, a single H-VTEC string will appear after the two P-VTEC strings. Being an areal watch product, the only element in the H-VTEC which will be populated by a non-default value will be the Immediate Cause. The Immediate Cause value encoded will apply to the NEW P-VTEC string.

APPENDIX A - Listing of P-VTEC Elements

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1. Generic P-VTEC Structure

/k.aaa.cccc.pp.s.####.yymmddThhnnZ$_B$-yymmddThhnnZ$_E$/

2. Fixed identifier (k)

O	Operational Product	E	Experimental Product
T	Test Product	X	Experimental VTEC in an Operational Product

3. Actions (aaa)

NEW	New Event	CAN	Event Canceled
CON	Event Continued	UPG	Event Upgraded
EXT	Event Extended (Time)	EXP	Event Expired
EXA	Event Extended (Area)	COR	Corrected
EXB	Event Extended (Both Time and Area)	ROU	Routine

4. Office ID (cccc)

Standard four-letter identifier indicating the NWS office with the primary responsibility for the affected area.

5. Phenomena (pp)

5.1 Phenomena (pp) codes grouped by hazard type

Winter

BZ	Blizzard
WS	Winter Storm
WW	Winter Weather
SN	Snow
HS	Heavy Snow
LE	Lake Effect Snow
BS	Blowing/Drifting Snow
SB	Snow and Blowing Snow
LB	Lake Effect Snow and Blowing Snow
IP	Sleet
ZR	Freezing Rain
IS	Ice Storm
WC	Wind Chill

Non-Precipitation

DU	Blowing Dust
DS	Dust Storm
WI	Wind
HW	High Wind
LW	Lake Wind
SM	Dense Smoke
FG	Dense Fog
ZF	Freezing Fog
FZ	Freeze
FR	Frost
HT	Heat
EH	Excessive Heat
EC	Extreme Cold

Hydrologic

FL	Flood
FA	Areal Flood
FF	Flash Flood
HY	Hydrologic

Marine and Coastal

MA	Marine
UP	Ice Accretion
SC	Small Craft
SW	Small Craft for Seas
BW	Brisk Wind
GL	Gale
SR	Storm
HF	Hurricane Force Wind
LS	Lakeshore Flood
CF	Coastal Flood
SU	High Surf
TS	Tsunami
LO	Low Water

Severe Storms

SV	Severe Thunderstorm
TO	Tornado

Tropical

TR	Tropical Storm
HU	Hurricane
TY	Typhoon
TI	Inland Tropical Storm
HI	Inland Hurricane

Other

AS	Air Stagnation
AV	Avalanche
FW	Fire Weather
RH	Radiological Hazard
VO	Volcano
AF	Volcanic Ashfall

5.2 Phenomena (pp) codes in alphabetical order

AF	Volcanic Ashfall	LB	Lake Effect Snow and Blowing Snow
AS	Air Stagnation	LE	Lake Effect Snow
AV	Avalanche	LO	Low Water
BS	Blowing/Drifting Snow	LS	Lakeshore Flood
BW	Brisk Wind	LW	Lake Wind
BZ	Blizzard	MA	Marine
CF	Coastal Flood	RH	Radiological Hazard
DS	Dust Storm	SB	Snow and Blowing Snow
DU	Blowing Dust	SC	Small Craft
EC	Extreme Cold	SM	Dense Smoke
EH	Excessive Heat	SN	Snow
FA	Areal Flood	SR	Storm
FF	Flash Flood	SU	High Surf
FG	Dense Fog	SV	Severe Thunderstorm
FL	Flood	SW	Small Craft for Seas
FR	Frost	TI	Inland Tropical Storm
FW	Fire Weather	TO	Tornado
FZ	Freeze	TR	Tropical Storm
GL	Gale	TS	Tsunami
HF	Hurricane Force Wind	TY	Typhoon
HI	Inland Hurricane	UP	Ice Accretion
HS	Heavy Snow	VO	Volcano
HT	Heat	WC	Wind Chill
HU	Hurricane	WI	Wind
HW	High Wind	WS	Winter Storm
HY	Hydrologic	WW	Winter Weather
IP	Sleet	ZF	Freezing Fog
IS	Ice Storm	ZR	Freezing Rain

6. Significance (s)

W	Warning	S	Statement	O	Outlook
A	Watch	F	Forecast	N	Synopsis
Y	Advisory				

7. Event Tracking Number - ETN (####)

A four-digit number assigned to keep track of an event during its lifetime. ETNs are assigned sequentially each year by each WFO for each combination of unique event phenomenon and significance. Certain convective watch redefining products issued by WFOs use the same ETN as the originating national watch product, but a single WFO will not use every ETN in sequence. (See Sections 2.2.6 and 3.4)

8. Event Beginning and Ending Date/Time Groups (yymmddThhnnZ$_B$-yymmddThhnnZ$_E$)

yy	Year	T	Place holder	Z_B	Place holder - beginning time
mm	Month	hh	hour	Z_E	Place holder - ending time
dd	Date	nn	Minute		

APPENDIX B - Listing of H-VTEC Elements

Generic H-VTEC Structure

/nwsli.s.ic.yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$.fr/

Site Identifier (nwsli)

Five character NWS Site Identifier. For areal flood products, encoded as 00000 (five zeros).

Flood Severity (s)

N None

0 for Flood Watches, Areal Flood Warnings, and for Flash Flood Warnings where no hydrologic observations and/or forecasts for specific locations in the warning area

The following codes are used for Flood Warnings, Flood Statements, Flash Flood Warnings, and Flash Flood Statements in which hydrologic observations and forecasts are provided for specific forecast points

1 Minor

2 Moderate

3 Major

U Unknown

Immediate Cause (ic)

ER	Excessive Rainfall	FT	Upstream Flooding plus Tidal Effects
SM	Snow melt	ET	Elevated Upstream Flow plus Tidal Effects
RS	Rain and Snowmelt	WT	Wind and/or Tidal Effects
DM	Dam or Levee Failure	DR	Upstream Dam or Reservoir Release
GO	Glacier-Dammed Lake Outburst	MC	Other Multiple Causes
IJ	Ice Jam	OT	Other Effects
IC	Rain and/or Snowmelt and/or Ice Jam	UU	Unknown
FS	Upstream Flooding plus Storm Surge		

Flood Timing (yymmddThhnnZ$_B$.yymmddThhnnZ$_C$.yymmddThhnnZ$_E$)

yy Year

mm Month

dd Date

T Place holder

hh hour

nn Minute

Z_B Place holder - beginning time

Z_C Place holder - crest time

Z_E Place holder - ending time

Flood Record Status (fr)

OO for Flood Watches, Areal Flood Warnings, and for Flash Flood Warnings where record status is not defined for specific locations in the warning area

NO A record flood is not expected

NR Near record or record flood expected

UU Flood without a period of record to compare

Note: Additional codes will be added as needed for future text products.

APPENDIX C - VTEC Products and Events Listings

1. Valid VTEC Events. Not all of the P-VTEC Phenomenon Codes and Significance Levels (as listed in Appendix A) are currently used in NWS products, and only some of the possible combinations of Phenomenon and Significance produce valid VTEC events. Tables listing these valid combinations are found at the following website:

http://www.nws.noaa.gov/os/vtec/draftevents.xls

These tables will be updated regularly as new codes are added and as VTEC-enabled products become operational.

2. VTEC Upgrade/Downgrade/Replace Product List. Only certain environmentally related events trigger a VTEC Upgrade (which uses the UPG and NEW action codes), Downgrade or Replacement (both using the CAN and NEW action codes). A document listing these products is found at the following website:

http://www.nws.noaa.gov/os/vtec/draftupdown.pdf - *coming soon*

This list will be updated as new codes are added.

APPENDIX D - Examples and Interpretations

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1. Key to VTEC examples. Throughout this Appendix and in the main text of this Directive, examples of P-VTEC and H-VTEC coding are included to illustrate and clarify points. Only the UGC and VTEC string(s) of the product(s) are included in the examples (in Courier New font). Some examples are completely made up, while others are either taken directly from or based on real events. The examples are indented from the rest of the text in a 10 point font and include all the information necessary to create the UGC and VTEC strings.

Here is a multi-segment Flood Warning example which appears later in this Appendix. Explanations of the example keywords (which are bolded here) are given below in the order in which they will normally appear in the examples. Depending on the type of product, not all of these keywords will appear in every example.

***Scenario**: Flood Warnings have Expired*
Issuing Office: WFO Quad Cities IA IL (KDVN)
Current time: 1535 UTC on May 3, 2004
Event (Product): Flood Warning for Forecast Points (FLS)
Immediate Cause: Excessive Rainfall
Product expiration time: 1635 UTC on May 3, 2004
Segment 1
Warning valid for: Mississippi River near Gladstone (GLDI2 - Iowa County 89 and Illinois County 25)
Event Tracking Number: 9th Flood Warning of the year for Forecast Points issued by KDVN
Expected Flood Severity: Minor

Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *2000 UTC on April 26, 1100 UTC on April 30*, and 1500 UTC on May 3, 2004

Segment 2

Warning valid for: Mississippi River at Burlington (BRLI4 - Iowa County 99 and Illinois County 34)

Event Tracking Number: 10th Flood Warning of the year for Forecast Points issued by KDVN

Expected Flood Severity: Minor

Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *2000 UTC on April 26, 2300 UTC on April 29*, and 1535 UTC on May 3, 2004

(**segment 1 of 2 within FLS product** - warning canceled for the Mississippi near Gladstone)

```
IAZ089-ILZ025-031635-                                  (UGC)
/O.EXP.KDVN.FL.W.0009.000000T0000Z-040503T1500Z/       (P-VTEC)
/GLDI2.1.ER.040426T2000Z.040430T1100Z.040503T1500Z.NO/ (H-VTEC)
```

(segment 2 of 2 within FLS product - warning canceled for the Mississippi at Burlington)

```
IAZ099-ILZ034-031635-                                  (UGC)
/O.EXP.KDVN.FL.W.0010.000000T0000Z-040503T1535Z/       (P-VTEC)
/BRLI4.1.ER.040426T2000Z.040429T2300Z.040503T1535Z.NO/ (H-VTEC)
```

***Explanation**:* This Flood Statement product from WFO Quad Cities has been issued for two forecast points on the Mississippi River. Each forecast point is in a separate segment, and each forecast point has a different ETN (of *0009* and *0010*). Since the flood warnings were in effect until their event ending times, the P-VTEC EXP (Expired) action code is used. This is a final message, informing that the flood warnings are no longer in effect. The event beginning times in each P-VTEC string has been set to zeros, since the flooding began at both points back on April 26th (in the H-VTEC codes). etc...

Example keywords:

Scenario - a brief description of why the product is being issued.

Issuing Office - the name and four-character identifier of the issuing office.

Current time - the time (in UTC) that the product is being issued. This is the time that would be included in the product MND and the WMO header.

Event (product) - the event(s) give the VTEC event(s) included in this issuance, the product (in parenthesis) is the three-character product class that the product is issued under.

Product expiration time - the time (in UTC) that the product expires. This is the time that is included in the UGC string.

Segment x - included in many segmented examples when the information is segment specific.

Warning/Watch/Advisory valid for - the area (county, parish, land or marine zone) or specific gauge (in the case of point floods) for which that particular event is valid.

Event Tracking Number - the ETN assigned to that event.

Expected (*or actual*) Event Beginning, Crest, and Ending times... - the date and time in UGC when the event if expected to begin and end, and when H-VTEC is included, expected to crest. These are the times that are included in the P-VTEC and H-VTEC strings. If the event beginning time and/or flood crest time have already occurred, the time will be in *italics*. If an event is being cancelled, the cancellation time will also be in *italics* (and in parentheses), with the previously forecast event ending time also given since that is what will appear in the P-VTEC string.

segment x of y within... - the UGC and VTEC string(s) which would appear in the product segment.

UGC - The UGC string for the product segment.

P-VTEC - The P-VTEC string for the product segment. If there are multiple P-VTEC strings in a segment, they will be numbered 1, 2, etc.

H-VTEC - For flood products, the H-VTEC string for the product segment.

Explanation - a more detailed description of the VTEC coding used in the product.

2. P-VTEC Examples and Interpretations. Following are examples of P-VTEC strings and interpretations (including the preceding UGC string that defines the affected geographic area and product expiration time) for (a) single event within one segment, (b) multiple events within one segment, (c) change to an event, and (d) full event sequence.

a. Single Event.

Example (1) - New Dense Fog Advisory

Scenario: Initial issuance
Issuing Office: WFO Wakefield VA (KAKQ)
Current time: 0700 UTC on December 26, 2004
Event (Product): Dense Fog Advisory (NPW)
Advisory valid for: Virginia Zones 88 thru 98
Product expiration time: 1300 UTC on December 26, 2004
Event Tracking Number: 9th Dense Fog Advisory of the year issued by KAKQ
Expected (*or actual*) Event Beginning and Ending times of the Advisory: *0700 UTC* and 1400 UTC on December 26, 2004

```
VAZ088>098-261300-                                        (UGC)
/O.NEW.KAKQ.FG.Y.0009.041226T0700Z-041226T1400Z/          (P-VTEC)
```

Explanation: WFO Wakefield, VA, issued an NPW product on December 26, 2004, for its 9th Dense Fog Advisory event, valid from 0700 UTC and1400 UTC on the 26th (P-VTEC string), for VA zones 88 through 98 (from the UGC string).

Example (2) - Cancel a Blizzard Watch

Scenario: Watch Cancellation
Issuing Office: WFO Bismarck ND (KBIS)
Current time: 1800 UTC on January 22, 2004
Event (Product): Blizzard Watch (WSW)
Watch valid for: North Dakota Zones 2 thru 5, 10 thru 13, and 18 thru 23
Product expiration time: 1900 UTC on January 22, 2004
Event Tracking Number: 2nd Blizzard Watch of the year issued by KBIS
Expected (*or actual*) Event Beginning and Ending times of the Watch: *0700 UTC* and 2000 UTC (*1800 UTC*) on January 22, 2004

```
NDZ002>005-010>013-018>023-221900-                        (UGC)
/O.CAN.KBIS.BZ.A.0002.000000T0000Z-040122T2000Z/          (P-VTEC)
```

Explanation: At 1800 UTC on January 22, 2004, WFO Bismarck canceled a Blizzard Watch that was to have remained in effect until 2000 UTC that day. Note that the Event Ending time remains unchanged (at 2000 UTC) even though the cancellation is immediate (at 1800 UTC).

Example (3) - Test Excessive Heat Warning

Scenario: Initial Issuance of a Test Heat Warning
Issuing Office: WFO Jackson MS (KJAN)
Current time: 1400 UTC on April 8, 2004
Event (Product): Test Excessive Heat Warning (NPW)
Test Warning valid for: Mississippi Zone 49

Product expiration time: 1445 UTC on April 8, 2004
Event Tracking Number: 2nd Excessive Heat Warning of the year issued by KJAN
Expected Event Beginning and Ending times of the Test Warning: 1415 UTC and 1445 UTC on April 8, 2004

```
MSZ049-081445-                                          (UGC)
/T.NEW.KJAN.EH.W.0002.040408T1415Z-040408T1445Z/         (P-VTEC)
```

Explanation: This is the second time an Excessive Heat Warning (test or operational) has been issued by WFO Jackson this year. Both the event and product end/expire at 1445 UTC.

b. Multiple Events.

Example - New Dust Storm Warning/Continued High Wind Warning

Scenario: Adding a Dust Storm Warning to a High Wind Warning
Issuing Office: WFO Phoenix AZ (KPSR)
Current time: 1730 UTC on November 12, 2004
Events (Product): Dust Storm and High Wind Warnings (NPW)
Warning valid for: Arizona Zones 22, 23, 27 and 28
Product expiration time: 2330 UTC on November 12, 2004
Event Tracking Numbers: 5th Dust Storm Warning and 9th High Wind Warning of the year issued by KPSR
Expected (or actual) Event Beginning and Ending times of the
Dust Storm Warning: *1730 UTC on November 12* and 0300 UTC on November 13, 2004
High Wind Warning: *1400 UTC on November 12* and 2100 UTC on November 13, 2004

```
AZZ022-023-027-028-122330-                              (UGC)
/O.NEW.KPSR.DS.W.0005.041112T1730Z-041113T0300Z/         (P-VTEC 1)
/O.CON.KPSR.HW.W.0009.000000T0000Z-041113T2100Z/         (P-VTEC 2)
```

Explanation: The NEW Dust Storm Warning joins the CONtinued High Wind Warning in this NPW product from WFO Phoenix. Since the High Wind Warning was already in effect, its Z_B time is set to all zeros (in P-VTEC string 2), while the NEW Dust Storm Warning has a Z_B set to the current (issuance) time (in P-VTEC string 1), since the Dust Storm Warning event will begin when this product is issued. Even though the Dust Storm Warning event is scheduled to begin later than the High Wind Warning, it is listed first since the event code is NEW (see Section 3.3).

c. Change to an Event.

Example (1) - Upgrade part of a Winter Storm Watch to a Heavy Snow Warning

Scenario: Upgrading part of a Winter Storm Watch to a Heavy Snow Warning, Continue the rest of the Watch
Issuing Office: WFO Amarillo TX (KAMA)
Current time: 2200 UTC on December 17, 2004
Events (Product): Winter Storm Watch and Heavy Snow Warning (WSW)
Product valid for: Texas Zones 1 thru 20
Product expiration time: 0400 UTC on December 18, 2004
Event Tracking Numbers: 11th Winter Storm Watch and 7th Heavy Snow Warning of the year issued by KAMA

Segment 1
Watch upgraded to Warning for: Texas Zones 1 thru 10
Expected (*or actual*) Event Beginning and Ending times of the
Watch: *1400 UTC on December 17* and 0800 UTC on December 18, 2004 *(2200 UTC on December 17, 2004*)
Warning: *2200 UTC on December 17* and 0800 UTC on December 18, 2004
Segment 2
Watch continued for: Texas Zones 11 thru 20
Expected (*or actual*) Event Beginning and Ending times of the
Watch: *1400 UTC on December 17* and 0800 UTC on December 18, 2004

(segment 1 of 2 within WSW product - upgraded part of watch to warning)

```
TXZ001>010-180400-                                          (UGC)
/O.UPG.KAMA.WS.A.0011.000000T0000Z-041218T0800Z/        (P-VTEC 1)
/O.NEW.KAMA.HS.W.0007.041217T2200Z-041218T0800Z/        (P-VTEC 2)
```

(segment 2 of 2 within WSW product - continued watch)

```
TXZ011>020-180400-                                          (UGC)
/O.CON.KAMA.WS.A.0011.000000T0000Z-041218T0800Z/        (P-VTEC)
```

Explanation: Even if all the Winter Storm Watch counties had been in just one segment of the previous WSW product, at least two segments are now required; one for the NEW Warning and UPGraded Watch, and one for the CONtinued Watch. Two P-VTEC strings are required in the first segment, the first to show that the Winter Storm Watch is being upgraded, and the second to show that it has been upgraded to a new Heavy Snow Warning.

Example (2) - Cancel part of a Winter Storm Warning, downgrade part of a Warning to Snow Advisory, extend a Warning into a new area

Scenario: Multiple segments in Follow-up Winter Storm Warning
Issuing Office: WFO Glasgow MT (KGGW)
Current time: 1600 UTC on March 23, 2004
Events (Product): Winter Storm Warning and Snow Advisory (WSW)
Product valid for: Montana Zones 16 thru 27 and 59 thru 62
Product expiration time of the
Canceled segment (segment 1): 1630 UTC on March 23, 2004
Rest of the segments: 2200 UTC on March 23, 2004
Event Tracking Numbers: 4th Winter Storm Warning and 8th Snow Advisory of the year issued by KGGW
Segment 1
Valid for: Montana Zones 59 and 61
Expected (*or actual*) Event Beginning and Ending times of the Warning: *1000 UTC* and 2200 UTC (*1600 UTC*) on March 23, 2004
Segment 2
Valid for: Montana Zones 16 thru 24, 60 and 62
Expected (*or actual*) Event Beginning and Ending times of the
Warning: *1000 UTC* and 2200 UTC (*1600 UTC*) on March 23, 2004
Advisory: *1600 UTC* and 2200 UTC on March 23, 2004
Segment 3
Valid for: Montana Zones 26 and 27
Expected (*or actual*) Event Beginning and Ending times of the Warning: *1600 UTC* and 2200 UTC on March 23, 2004
Segment 4
Valid for: Montana Zone 25

Expected (*or actual*) Event Beginning and Ending times of the Warning: *1000 UTC* and 2200 UTC on March 23, 2004

(segment 1 of 4 within WSW product - cancel part of warning)

```
MTZ059-061-231630-                                      (UGC)
/O.CAN.KGGW.WS.W.0004.000000T0000Z-040323T2200Z/        (P-VTEC)
```

(segment 2 of 4 within WSW product - downgrade part of warning to advisory)

```
MTZ016>024-060-062-232200-                              (UGC)
/O.CAN.KGGW.WS.W.0004.000000T0000Z-040323T2200Z/        (P-VTEC 1)
/O.NEW.KGGW.SN.Y.0008.040323T1600Z-040323T2200Z/        (P-VTEC 2)
```

(segment 3 of 4 within WSW product - extend warning into new area)

```
MTZ026>027-232200-                                      (UGC)
/O.EXA.KGGW.WS.W.0004.000000T0000Z-040323T2200Z/        (P-VTEC)
```

(segment 4 of 4 within WSW product - continued warning)

```
MTZ025-232200-                                          (UGC)
/O.CON.KGGW.WS.W.0004.000000T0000Z-040323T2200Z/        (P-VTEC)
```

Explanation: The three separate actions on the Winter Storm Warning (Cancel, Downgrade to Advisory, and Extend and Continue) require at least three separate segments. All the segments reference the same Winter Storm Warning ETN, and since the Warning was already occurring, the event beginning time in all the Warning P-VTEC strings (except the NEW) is set to zeros.

Example (3) - Extend Part of Event in Area and Upgrade Rest of Area

Scenario: Upgrade part of High Wind Watch to Warning, and expand area of remaining Watch
Issuing Office: WFO Cleveland OH (KCLE)
Current time: 1200 UTC on April 14, 2004
Events (Product): High Wind Watch and High Wind Warning (NPW)
Product valid for: Ohio Zones 1 thru 10
Product expiration time: 1800 UTC on April 14, 2004
Event Tracking Numbers: 5th High Wind Watch and 4th High Wind Warning of the year issued by KCLE
Segment 1
Valid for: Ohio Zones 1 thru 5
Expected (*or actual*) Event Beginning and Ending times of the
Watch: *1000 UTC on April 14* and 0600 UTC on April 15, 2004 (*1200 UTC on April 14*)
Warning: 1200 UTC on April 14 and 0600 UTC on April 15, 2004
Segment 2
Valid for: Ohio Zones 6 thru 10
Expected (*or actual*) Event Beginning and Ending times of the Watch: *1200 UTC on April 14* and 0600 UTC on April 15, 2004

(segment 1of 2 within NPW product - upgrade watch to warning)

```
OHZ001>005-141800-                                      (UGC)
/O.UPG.KCLE.HW.A.0005.000000T0000Z-040415T0600Z/        (P-VTEC 1)
/O.NEW.KCLE.HW.W.0004.040414T1200Z-040415T0600Z/        (P-VTEC 2)
```

(segment 2of 2 within NPW product - extend watch into new area)

```
OHZ006>010-141800-                                      (UGC)
/O.EXA.KCLE.HW.A.0005.000000T0000Z-040415T0600Z/        (P-VTEC)
```

Explanation: Two segments are used in the NPW product, one for the upgrade of the High Wind Watch to a High Wind Warning (segment 1), and the other for extending the area of the watch to five new counties (segment 2). Even though the entire original watch area is being upgraded to warning and the expanded watch area is all new, the same watch ETN (of *0005*) is used for the expanded area since it is the same meteorological event. Since the Watch event had already begun, the beginning event time for the watch is encoded as all zeros in both segments. The beginning event time for the warning in segment 1 is specifically encoded with the current time, since it is a NEW event beginning now.

Example (4) - Clearing a portion of a Severe Thunderstorm Watch Area

Scenario: Follow-up Statement to clear zones from Severe Thunderstorm Watch
Issuing Office: WFO Shreveport LA (KSHV)
Current time: 2030 UTC on May 26, 2004
Event (Product): Severe Thunderstorm Watch (WCN)
Product valid for: Arkansas Counties 27, 57, 61, 73, 81, 91, 99, 133 and 139; Louisiana Parishes 13, 15, 17, 27, 31, 81 and 119; Texas Counties 37, 63, 67, 183, 203, 315, 343, 365 and 459
Product expiration time of the
- Canceled segment (segment 1): 2030 UTC on May 26, 2004
- Continued segment: 0100 UTC on May 27, 2004

Event Tracking Number: 1002nd Watch of the year issued by the SPC (this one being for Severe Thunderstorm)
Segment 1
- Valid for: Arkansas Counties 61, 81 and 133
- Expected (*or actual*) Event Beginning and Ending times of the Watch: *1800 UTC on May 26* and 0100 UTC on May 27, 2004 (*2030 UTC on May 26*)

Segment 2
- Valid for: Arkansas Counties 27, 57, 73, 91, 99 and 139; Louisiana Parishes 13, 15, 17, 27, 31, 81 and 119; Texas Counties 37, 63, 67, 183, 203, 315, 343, 365 and 459
- Expected (*or actual*) Event Beginning and Ending times of the Watch: *1800 UTC on May 26* and 0100 UTC on May 27, 2004

(segment 1 of 2 within WCN product - canceled part of watch)

```
ARC061-081-133-262030-                                  (UGC)
/O.CAN.KSHV.SV.A.1002.000000T0000Z-040527T0100Z/        (P-VTEC)
```

(segment 2 of 2 within WCN product - continued remainder of watch)

```
ARC027-057-073-091-099-139-LAC013-015-017-027-
031-081-119-TXC037-063-067-183-203-315-343-365-
459-270100-                                             (UGC)
/O.CON.KSHV.SV.A.1002.000000T0000Z-040527T0100Z/        (P-VTEC)
```

Explanation: There are two segments, the first to cancel (clear) the watch from three counties, and the second to continue the watch for the rest of the counties.

Example (5) - Correct the County List in a Winter Weather W/W/A

Product 1

Scenario: Freezing Rain Advisory issued for a group of zones
Issuing Office: WFO Peachtree City GA (KFFC)
Current time: 0900 UTC on January 26, 2004
Events (Product): Freezing Rain Advisory (WSW)

Advisory valid for: Georgia Zones 8, 9, 14 thru 16, 21 thru 25, 27, 32 thru 39, 44 thru 51, and 54 thru 60
Product expiration time: 1400 UTC on January 26, 2004
Event Tracking Number: 3rd Freezing Rain Advisory of the year issued by KFFC
Expected (*or actual*) Event Beginning and Ending times of the Advisory: *0900 UTC* and 1400 UTC on January 26, 2004

```
GAZ008-009-014>016-021>025-027-032>039-044>051-
054>060-261400-                                    (UGC)
/O.NEW.KFFC.ZR.A.0003.040126T0900Z-040126T1400Z/    (P-VTEC)
```

Explanation: WFO Peachtree City has issued a Freezing Rain Advisory for a group of counties in Georgia.

Product 2

Scenario: Correcting the Advisory to remove four zones inadvertently included
Issuing Office: WFO Peachtree City GA (KFFC)
Current time: 0910 UTC on January 26, 2004
Events (Product): Freezing Rain Advisory (WSW)
Product valid for: Georgia Zones 8, 9, 14 thru 16, 21 thru 25, 27, 32 thru 39, 44 thru 51, and 54 thru 60
Product expiration time of the
Canceled segment: 0945 UTC on January 26, 2004
Continued segment: 1400 UTC on January 26, 2004
Event Tracking Numbers: 3rd Freezing Rain Advisory of the year issued by KFFC

Segment 1
Valid for: Georgia Zones 56, and 58 thru 60
Expected (*or actual*) Event Beginning and Ending times of the Advisory: *0900 UTC* and 1400 UTC on January 26, 2004 (*0910 UTC on January 26*)
Segment 2
Valid for Georgia Zones 8, 9, 14 thru 16, 21 thru 25, 27, 32 thru 39, 44 thru 51, 54, 55 and 57
Expected (*or actual*) Event Beginning and Ending times of the Advisory: *0900 UTC* and 1400 UTC on January 26, 2004

(segment 1 of 2 within WSW product - canceled part of advisory)

```
GAZ056-058>060-260945-                             (UGC)
/O.CAN.KFFC.ZR.A.0003.000000T0000Z-040126T1400Z/    (P-VTEC)
```

(segment 2 of 2 within WSW product - continued rest of advisory)

```
GAZ008-009-014>016-021>025-027-032>039-044>051-
054>055-057-261400-                                (UGC)
/O.CON.KFFC.ZR.A.0003.000000T0000Z-040126T1400Z/    (P-VTEC)
```

Explanation: Shortly after the Advisory was issued, it was discovered that four counties had been inadvertently included. For such errors in these Winter Weather W/W/A products, the WSW is reissued with two segments, one that cancels the advisory in the inadvertently added counties, and one that continues the rest of the advisory. Other than the different P-VTEC action codes used (*CAN* in the canceled segment and *CON* in the continued segment) and the zeros in the Event Beginning Date/Time Group, the rest of the P-VTEC strings remain the same as in the original Advisory. The product expiration time in the first (*CAN*) segment has been shortened to ensure that while the cancellation is properly disseminated on NOAA Weather Radio and other systems, it does not need to be valid for the entire five hour expected duration of the Advisory.

Example (6) - Correct the County List in a Short Duration Warning

Product 1

Scenario: Severe Thunderstorm Warning issued for two counties
Issuing Office: WFO Birmingham AL (KBMX)
Current time: 0135 UTC on April 8, 2004
Events (Product): Severe Thunderstorm Warning (SVR)
Warning valid for: Alabama Counties 21 and 37
Product expiration time: 0230 UTC on April 8, 2004
Event Tracking Number: 23rd Severe Thunderstorm Warning of the year issued by KBMX
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0135 UTC* and 0230 UTC on April 8, 2004

```
ALC021-037-080230-                                        (UGC)
/O.NEW.KBMX.SV.W.0023.040408T0135Z-040408T0230Z/          (P-VTEC)
```

Explanation: WFO Birmingham has issued a Severe Thunderstorm Warning for two counties in Alabama.

Product 2

Scenario: Correcting the Warning to remove a county inadvertently included
Issuing Office: WFO Birmingham AL (KBMX)
Current time: 0142 UTC on April 8, 2004
Events (Product): Severe Thunderstorm Warning (SVR)
Warning originally valid for: Alabama Counties 21 and 37
Warning now valid for: Alabama County 21
Product expiration time: 0230 UTC on April 8, 2004
Event Tracking Number: 23rd Severe Thunderstorm Warning of the year issued by KBMX
Expected (or actual) Event Beginning and Ending times of the Warning: *0135 UTC* and 0230 UTC on April 8, 2004

```
ALC021-080230-                                            (UGC)
/O.COR.KBMX.SV.W.0023.040408T0135Z-040408T0230Z/          (P-VTEC)
```

Explanation: Alabama County 37 was inadvertently included in the Severe Thunderstorm Warning. For such errors in short duration warnings, a corrected Warning is issued using the COR P-VTEC action code. All the other elements of the P-VTEC string remain the same as the original Warning, including the ETN of *0023*. By comparing the UGC strings of the original and corrected warnings, customers can tell that County 37 was removed.

d. Full Event Sequence.

Example - Winter Storm situation, from watch to warning and advisory to eventual cancellation, including the follow-up statements.

Product 1

Scenario: Initial Watch issuance
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 1005 UTC on March 15, 2004
Event (Product): Winter Storm Watch (WSW)
Watch being issued for: New Jersey Zone 1 and Pennsylvania Zones 54 and 55

Product expiration time: 1700 UTC on March 15, 2004
Event Tracking Number: 18th Winter Storm Watch of the year issued by KPHI
Expected Event Beginning and Ending times of the Watch: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

```
NJZ001-PAZ054-055-151700-                                (UGC)
/O.NEW.KPHI.WS.A.0018.040316T1200Z-040317T0200Z/         (P-VTEC)
```

Explanation: WFO Mount Holly NJ issued a new Winter Storm Watch, their 18th of the year.

Product 2

Scenario: Follow-up Statement for Watch
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 1600 UTC on March 15, 2004
Event (Product): Winter Storm Watch (WSW)
Watch continued for: New Jersey Zone 1 and Pennsylvania Zones 54 and 55
Product expiration time: 2300 UTC on March 15, 2004
Event Tracking Number: 18th Winter Storm Watch of the year issued by KPHI
Expected Event Beginning and Ending times of the Watch: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

```
NJZ001-PAZ054-055-152300-                                (UGC)
/O.CON.KPHI.WS.A.0018.040316T1200Z-040317T0200Z/         (P-VTEC)
```

Explanation: Six hours later, a continuation statement is issued. There were no changes in event area or time.

Product 3

Scenario: Upgrade Watch to Warning, Add a New Warning area, Issue New Advisory
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 2030 UTC on March 15, 2004
Events (Product): Winter Storm Watch, Heavy Snow Warning and Snow Advisory (WSW)
Product valid for: New Jersey Zones 1, 7 thru 10, 12, and 15; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 69
Product expiration time: 0300 UTC on March 16, 2004
Event Tracking Numbers: 18th Winter Storm Watch, 10th Heavy Snow Warning and 14th Snow Advisory of the year issued by KPHI
Segment 1
- Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Winter Storm Watch: 1200 UTC on March 16 and 0200 UTC on March 17, 2004 (*2030 UTC on March 15*)
  - Heavy Snow Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

Segment 2
- Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62
- Expected Event Beginning and Ending times of the Heavy Snow Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

Segment 3
- Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69
- Expected Event Beginning and Ending times of the Snow Advisory: 1200 UTC and 2300 UTC on March 16, 2004

(segment 1 of 3 within WSW product - upgrade initial watch to warning)

```
NJZ001-PAZ054-055-160300-                              (UGC)
/O.UPG.KPHI.WS.A.0018.040316T1200Z-040317T0200Z/       (P-VTEC 1)
/O.NEW.KPHI.HS.W.0010.040316T1200Z-040317T0200Z/       (P-VTEC 2)
```

(segment 2 of 3 within WSW product - new warning segment with the same ETN)

```
NJZ007-008-PAZ060>062-160300-                          (UGC)
/O.NEW.KPHI.HS.W.0010.040316T1200Z-040317T0200Z/       (P-VTEC)
```

(segment 3 of 3 within WSW product - new advisory)

```
NJZ009-010-012-015-PAZ067>069-160300-                  (UGC)
/O.NEW.KPHI.SN.Y.0014.040316T1200Z-040316T2300Z/       (P-VTEC)
```

Explanation: The Winter Storm Watch has been Upgraded to a Warning, and a Warning and an Advisory have also been issued for adjacent areas that were not under the Watch. There are two Warning segments (because of differences in expected accumulation), with the same Heavy Snow Warning ETN, since the valid times overlap.

Product 4

Scenario: Follow-Up Statement for Warning and Advisory
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 0215 UTC on March 16, 2004
Events (Product): Heavy Snow Warning and Snow Advisory (WSW)
Product valid for: New Jersey Zones 1, 7 thru 10, 12, and 15; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 69
Product expiration time: 1100 UTC on March 16, 2004
Event Tracking Numbers: 10th Heavy Snow Warning and 14th Snow Advisory of the year issued by KPHI
Segment 1
- Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55
- Expected Event Beginning and Ending times of the Heavy Snow Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

Segment 2
- Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62
- Expected Event Beginning and Ending times of the Heavy Snow Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

Segment 3
- Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69
- Expected Event Beginning and Ending times of the Snow Advisory: 1200 UTC and 2300 UTC on March 16, 2004

(segment 1 of 3 within WSW product - continued warning)

```
NJZ001-PAZ054-055-161100-                              (UGC)
/O.CON.KPHI.HS.W.0010.040316T1200Z-040317T0200Z/       (P-VTEC)
```

(segment 2 of 3 within WSW product - continued warning)

```
NJZ007-008-PAZ060>062-161100-                          (UGC)
/O.CON.KPHI.HS.W.0010.040316T1200Z-040317T0200Z/       (P-VTEC)
```

(segment 3 of 3 within WSW product - continued advisory)

```
NJZ009-010-012-015-PAZ067>069-161100-                  (UGC)
/O.CON.KPHI.SN.Y.0014.040316T1200Z-040316T2300Z/       (P-VTEC)
```

Explanation: About six hours later, a continuation statement is issued. There were no changes in event areas or times.

Product 5

Scenario: Follow-Up Statement for Warning and Advisory, Changing some of the Phenomena
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 0950 UTC on March 16, 2004
Events (Product): Heavy Snow Warning, Winter Storm Warning, Snow Advisory, and Winter Weather Advisory (WSW)
Product valid for: New Jersey Zones 1, 7 thru 10, 12, and 15; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 69
Product expiration time: 1700 UTC on March 16, 2004
Event Tracking Numbers: 10th Heavy Snow Warning, 7th Winter Storm Warning, 14th Snow Advisory, and 6th Winter Weather Advisory of the year issued by KPHI
Segment 1
- Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62
- Expected (*or actual*) Event Beginning and Ending times of the
  - Heavy Snow Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004 (*0950 UTC on March 16*)
  - Winter Storm Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

Segment 2
- Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55
- Expected Event Beginning and Ending times of the Heavy Snow Warning: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

Segment 3
- Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69
- Expected (*or actual*) Event Beginning and Ending times of the
  - Snow Advisory: 1200 UTC and 2300 UTC (*0950 UTC*) on March 16, 2004
  - Winter Weather Advisory: 1200 UTC on March 16 and 0200 UTC on March 17, 2004

(segment 1 of 3 within WSW product - changed Heavy Snow Warning to Winter Storm Warning)

```
NJZ007-008-PAZ060>062-161700-                          (UGC)
/O.CAN.KPHI.HS.W.0010.040316T1200Z-040317T0200Z/       (P-VTEC 1)
/O.NEW.KPHI.WS.W.0007.040316T1200Z-040317T0200Z/       (P-VTEC 2)
```

(segment 2 of 3 within WSW product - continued Heavy Snow Warning)

```
NJZ001-PAZ054-055-161700-                              (UGC)
/O.CON.KPHI.HS.W.0010.040316T1200Z-040317T0200Z/       (P-VTEC)
```

(segment 3 of 3 within WSW product - changed to Winter Weather Advisory and extended valid time)

```
NJZ009-010-012-015-PAZ067>069-161700-                  (UGC)
/O.CAN.KPHI.SN.Y.0014.040316T1200Z-040316T2300Z/       (P-VTEC 1)
/O.NEW.KPHI.WW.Y.0006.040316T1200Z-040317T0200Z/       (P-VTEC 2)
```

Explanation: Another continuation statement is issued in the early morning of the 16th, with a few changes. Since some sleet is expected to mix in across part of the area, the second warning segment has been changed to a Winter Storm Warning and the advisory segment to a Winter Weather Advisory. Even though the ending time of the advisory has changed, the P-VTEC action code for the newly issued Winter Weather Advisory is coded as NEW (rather than EXT).

Product 6

Scenario: Corrected Follow-Up Statement for Warnings and Advisory, Extending Event times
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 1000 UTC on March 16, 2004

Events (Product): Heavy Snow Warning, Winter Storm Warning and Winter Weather Advisory (WSW)
Product valid for: New Jersey Zones 1, 7 thru 10, 12, and 15; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 69
Product expiration time: 1700 UTC on March 16, 2004
Event Tracking Numbers: 10th Heavy Snow Warning, 7th Winter Storm Warning, and 6th Winter Weather Advisory of the year issued by KPHI
Segment 1
Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55
Expected Event Beginning and Ending times of the Heavy Snow Warning: 1200 UTC on March 16 and 0500 UTC on March 17, 2004
Segment 2
Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62
Expected Event Beginning and Ending times of the Winter Storm Warning: 1200 UTC on March 16 and 0500 UTC on March 17, 2004
Segment 3
Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69
Expected Event Beginning and Ending times of the Winter Weather Advisory: 1200 UTC on March 16 and 0500 UTC on March 17, 2004

(segment 1 of 3 within WSW product - corrected warning to extend event ending time)
```
NJZ001-PAZ054-055-161700-                              (UGC)
/O.EXT.KPHI.HS.W.0010.040316T1200Z-040317T0500Z/       (P-VTEC)
```

(segment 2 of 3 within WSW product - corrected warning to extend event ending time)
```
NJZ007-008-PAZ060>062-161700-                          (UGC)
/O.EXT.KPHI.WS.W.0007.040316T1200Z-040317T0500Z/       (P-VTEC)
```

(segment 3 of 3 within WSW product - corrected advisory to extend event ending time)
```
NJZ009-010-012-015-PAZ067>069-161700-                  (UGC)
/O.EXT.KPHI.WW.Y.0006.040316T1200Z-040317T0500Z/       (P-VTEC)
```

Explanation: Ten minutes later, a corrected WSW is issued to extend the Event Ending Times from 0100 UTC to 0500 UTC on the 17th. The P-VTEC strings which were cancelled in the previous issuance are not included, since cancellation (by definition) is immediate. The correction was related to P-VTEC coding, so the remaining P-VTEC strings are encoded with a single EXT action code (for Extend Time) rather than a COR action code (for Correction). Had the correction been for a typographical or grammatical error in the text, the P-VTEC strings of the corrected segment(s) would have used the COR action code.

Product 7

Scenario: Follow-Up Statement for Warning and Advisory, Issue A New Advisory Segment
Issuing Office: WFO Mount Holly NJ (KPHI)
Current time: 1435 UTC on March 16, 2004
Events (Product): Heavy Snow Warning, Winter Storm Warning and Snow Advisory (WSW)
Product valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 1, 7 thru 10, 12 thru 20, 26 and 27; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 71
Product expiration time of the
New Advisory (segment 3): 1700 UTC on March 16, 2004
Rest of the Segments: 2200 UTC on March 16, 2004
Event Tracking Numbers: 10th Heavy Snow Warning, 7th Winter Storm Warning, and 6th Winter Weather Advisory of the year issued by KPHI
Segment 1
Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55

Expected (*or actual*) Event Beginning and Ending times of the Heavy Snow Warning: *1200 UTC on March 16* and 0500 UTC on March 17, 2004

Segment 2

Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62

Expected (*or actual*) Event Beginning and Ending times of the Winter Storm Warning: *1200 UTC on March 16* and 0500 UTC on March 17, 2004

Segment 3

Valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 13, 14, 16 thru 20, 26 and 27; Pennsylvania Zones 70 and 71

Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory: *1200 UTC* and 1700 UTC on March 16, 2004

Segment 4

Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69

Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory: *1200 UTC on March 16* and 0500 UTC on March 17, 2004

(segment 1 of 4 within WSW product - continued warning)

```
NJZ001-PAZ054-055-162200-                                  (UGC)
/O.CON.KPHI.HS.W.0010.000000T0000Z-040317T0500Z/           (P-VTEC)
```

(segment 2 of 4 within WSW product - continued warning)

```
NJZ007-008-PAZ060>062-162200-                              (UGC)
/O.CON.KPHI.WS.W.0007.000000T0000Z-040317T0500Z/           (P-VTEC)
```

(segment 3 of 4 within WSW product - new advisory segment)

```
DEZ001-MDZ008-NJZ013-014-016>020-026-027-
PAZ070-071-161700-                                         (UGC)
/O.EXB.KPHI.WW.Y.0006.000000T0000Z-040316T1700Z/           (P-VTEC)
```

(segment 4 of 4 within WSW product - continued advisory)

```
NJZ009-010-012-015-PAZ067>069-162200-                      (UGC)
/O.CON.KPHI.WW.Y.0006.000000T0000Z-040317T0500Z/           (P-VTEC)
```

Explanation: The three segments from the previous product are continued in this product, although now that the Event Beginning Time for them (1200 UTC) has passed, the Event Beginning Date/Time Group is encoded as zeros in those P-VTEC strings. A fourth segment (segment 3 of 4) has been added, expanding the advisory area. Although this new segment has a different ending time than the existing advisory segment (hence it has an action code of EXB rather than EXA) it receives the same ETN (*0006*) as segment 4. The Advisory areas are for the same VTEC event (*WW.Y*) and the valid times overlap. Likewise, since the event associated with that ETN has already begun, the event beginning time of segment 3 is encoded as zeros.

Product 8

Scenario: Follow-up Statement for Warning and Advisory, Part of Expired Advisory Re-Started

Issuing Office: WFO Mount Holly NJ (KPHI)

Current time: 1725 UTC on March 16, 2004

Events (Product): Heavy Snow Warning, Winter Storm Warning, and Winter Weather Advisory (WSW)

Product valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 1, 7 thru 10, and 12 thru 15; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 71

Product expiration time: 2300 UTC on March 16, 2004

Event Tracking Numbers: 10th Heavy Snow Warning, 7th Winter Storm Warning, and 6th Winter Weather Advisory of the year issued by KPHI

Segment 1

Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55

Expected (*or actual*) Event Beginning and Ending times of the Heavy Snow Warning:
1200 UTC on March 16 and 0500 UTC on March 17, 2004

Segment 2

Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62

Expected (*or actual*) Event Beginning and Ending times of the Winter Storm Warning:
1200 UTC on March 16 and 0500 UTC on March 17, 2004

Segment 3

Valid for: New Jersey Zones 13 and 14

Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory:
1725 UTC and 2300 UTC on March 16, 2004

Segment 4

Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69

Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory:
1200 UTC on March 16 and 0500 UTC on March 17, 2004

(segment 1 of 4 within WSW product - continued warning)

```
NJZ001-PAZ054-055-162300-                              (UGC)
/O.CON.KPHI.HS.W.0010.000000T0000Z-040317T0500Z/       (P-VTEC)
```

(segment 2 of 4 within WSW product - continued warning)

```
NJZ007-008-PAZ060>062-162300-                          (UGC)
/O.CON.KPHI.WS.W.0007.000000T0000Z-040317T0500Z/       (P-VTEC)
```

(segment 3 of 4 within WSW product - restarted advisory)

```
NJZ013-014-162300-                                     (UGC)
/O.EXB.KPHI.WW.Y.0006.000000T0000Z-040316T2300Z/       (P-VTEC)
```

(segment 4 of 4 within WSW product - continued advisory)

```
NJZ009-010-012-015-PAZ067>069-162300-                  (UGC)
/O.CON.KPHI.WW.Y.0006.000000T0000Z-040317T0500Z/       (P-VTEC)
```

Explanation: A portion of the advisory that expired at 1700 UTC is being reissued until 2300 UTC (for two zones). Although that segment had expired before the issuance of this product, the ETN of *0006* was still valid elsewhere (in segment 4), so the EXB action code is used for those two zones with the event beginning time coded as zeros.

Product 9

Scenario: Follow-up Statement for Warning and Advisory, Cancel Part of Advisory, Expand Area of Advisory

Issuing Office: WFO Mount Holly NJ (KPHI)

Current time: 2000 UTC on March 16, 2004

Events (Product): Heavy Snow Warning, Winter Storm Warning, and Winter Weather Advisory (WSW)

Advisory canceled for: New Jersey Zone 14

Product valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 1, 7 thru 10, and 12 thru 19; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 71

Product expiration time of the

Canceled segment (segment 1): 2100 UTC on March 16, 2004

Rest of the segments: 0500 UTC on March 17, 2004

Event Tracking Numbers: 10th Heavy Snow Warning, 7th Winter Storm Warning, and 6th Winter Weather Advisory of the year issued by KPHI

Segment 1

Valid for: New Jersey Zone 14

Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory:
1725 UTC and 2300 UTC (*2000 UTC*) on March 16, 2004

Segment 2
Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55
Expected (*or actual*) Event Beginning and Ending times of the Heavy Snow Warning:
1200 UTC on March 16 and 0500 UTC on March 17, 2004

Segment 3
Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62
Expected (*or actual*) Event Beginning and Ending times of the Winter Storm Warning:
1200 UTC on March 16 and 0500 UTC on March 17, 2004

Segment 4
Valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 16 thru 19;
Pennsylvania Zones 70 and 71
Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory:
2000 UTC on March 16 and 0500 UTC on March 17, 2004

Segment 5
Valid for: New Jersey Zone 13
Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory:
1725 UTC on March 16 and 0500 UTC on March 17, 2004

Segment 6
Valid for: New Jersey Zones 9, 10, 12, and 15; Pennsylvania Zones 67 thru 69
Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory:
1200 UTC on March 16 and 0500 UTC on March 17, 2004

```
(segment 1 of 6 within WSW product - canceled part of advisory)
NJZ014-162100-                                          (UGC)
/O.CAN.KPHI.WW.Y.0006.000000T0000Z-040316T2300Z/        (P-VTEC)

(segment 2 of 6 within WSW product - continued warning)
NJZ001-PAZ054-055-170500-                               (UGC)
/O.CON.KPHI.HS.W.0010.000000T0000Z-040317T0500Z/        (P-VTEC)

(segment 3 of 6 within WSW product - continued warning)
NJZ007-008-PAZ060>062-170500-                           (UGC)
/O.CON.KPHI.WS.W.0007.000000T0000Z-040317T0500Z/        (P-VTEC)

(segment 4 of 6 within WSW product - expand advisory into new area)
DEZ001-MDZ008-NJZ016>019-PAZ070-071-170500-             (UGC)
/O.EXA.KPHI.WW.Y.0006.000000T0000Z-040317T0500Z/        (P-VTEC)

(segment 5 of 6 within WSW product - extended advisory)
NJZ013-170500-                                          (UGC)
/O.EXT.KPHI.WW.Y.0006.000000T0000Z-040317T0500Z/        (P-VTEC)

(segment 6 of 6 within WSW product - continued advisory)
NJZ009-010-012-015-PAZ067>069-170500-                   (UGC)
/O.CON.KPHI.WW.Y.0006.000000T0000Z-040317T0500Z/        (P-VTEC)
```

Explanation: The Advisory area is being changed again. The original Advisory area (first issued in Product 3) is being continued (segment 6), a new Advisory area is being added (segment 4), while the Advisory segment that was added in Product 7 is being partially cancelled (segment 1) and partially extended in time (segment 5). The Warning segments (2 and 3) remain unchanged in event area and time.

Product 10

Scenario: Cancel Warnings and Advisory
Issuing Office: WFO Mount Holly NJ (KPHI)

Current time: 0215 UTC on March 17, 2004
Events (Product): Heavy Snow Warning, Winter Storm Warning and Winter Weather Advisory (WSW)
Product valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 1, 7 thru 10, 12, 13, and 15 thru 19; Pennsylvania Zones 54, 55, 60 thru 62, and 67 thru 71
Product expiration time: 0330 UTC on March 16, 2004
Event Tracking Numbers: 10th Heavy Snow Warning, 7th Winter Storm Warning, and6th Winter Weather Advisory of the year issued by KPHI
Segment 1
Valid for: New Jersey Zone 1; Pennsylvania Zones 54 and 55
Expected (*or actual*) Event Beginning and Ending times of the Heavy Snow Warning: *1200 UTC on March 16* and 0500 UTC (*0215 UTC*) on March 17, 2004
Segment 2
Valid for: New Jersey Zones 7 and 8; Pennsylvania Zones 60 thru 62
Expected (*or actual*) Event Beginning and Ending times of the Winter Storm Warning: *1200 UTC on March 16* and 0500 UTC (*0215 UTC*) on March 17, 2004
Segment 4
Valid for: Delaware Zone 1; Maryland Zone 8; New Jersey Zones 9, 10, 12, 13, and 15 thru 19; Pennsylvania Zones 67 thru 71
Expected (*or actual*) Event Beginning and Ending times of the Winter Weather Advisory: *1200/1725/2000 UTC on March 16* and 0500 UTC (*0215 UTC*) on March 17, 2004

(segment 1 of 3 within WSW product - canceled warning)

```
NJZ001-PAZ054-055-170330-                              (UGC)
/O.CAN.KPHI.HS.W.0010.000000T0000Z-040317T0500Z/       (P-VTEC)
```

(segment 2 of 3 within WSW product - canceled warning)

```
NJZ007-008-PAZ060>062-170330-                          (UGC)
/O.CAN.KPHI.WS.W.0007.000000T0000Z-040317T0500Z/       (P-VTEC)
```

(segment 3 of 3 within WSW product - canceled advisory)

```
DEZ001-MDZ008-NJZ009-010-012-013-015>019-
PAZ067>071-170330-                                     (UGC)
/O.CAN.KPHI.WW.Y.0006.000000T0000Z-040317T0500Z/       (P-VTEC)
```

Explanation: The precipitation has ended, and all Warnings and Advisories are being canceled. The Event Ending Time from the previous product is maintained in the P-VTEC strings, even though the event is being canceled immediately upon issuance of this WSW. Note that the valid advisory segments in the previous Product (segments 4, 5, and 6) are put back together into one (segment 3) in this product, since they were all valid until 0500 UTC and the action being taken on all of them is the same. While the two warning segments have the same event ending time and are both being cancelled, they cannot be recombined because they have different VTEC phenomena codes (Heavy Snow vs Winter Storm).

3. Marine and Coastal P-VTEC Examples and Interpretations. Following are examples of marine and coastal products that are used either solely for non-routine events (W/W/A) or as a combination of routine and non-routine events (including the preceding UGC string that defines the affected geographic area and product expiration time), for (a) single event within one segment, (b) multiple events within one segment, (c) change to an event, and (d) full event sequences.

a. Single Event.

Example (1) - Coastal Waters Forecast (CWF) Product

Scenario: Routine issuance with a Continued Gale Warning
Issuing Office: WFO San Diego CA (KSGX)
Current time: 1030 UTC on December 15, 2004
Event (Product): Gale Warning (CWF)
Forecast valid for: Western North Pacific Marine zone 750
Product expiration time: 2230 UTC on December 15, 2004
Event Tracking Number: 5th Gale Warning of the year issued by KSGX
Expected (*or actual*) Event Beginning and Ending times of the Gales: *0700 UTC on December 15, 2004* and 0400 UTC on December 16, 2004

```
PZZ750-152230-                                          (UGC)
/O.CON.KSGX.GL.W.0005.000000T0000Z-041216T0400Z/        (P-VTEC 1)
```

Explanation: The Gale Warning (5th of the year) is the only Headline included in this Coastal Waters Forecast segment, so it is the only P-VTEC string encoded.

Example (2) - High Surf Advisory (CFW) Product

Scenario: Follow-up Statement
Issuing Office: WFO Guam GU (PGUM)
Current time: 0200 UTC on March 31, 2004
Event (Product): High Surf Advisory (CFW)
Advisory valid for: Western Pacific Ocean Marine Zones 151 thru 154
Product expiration time: 0200 UTC on April 1, 2004
Event Tracking Number: 6th High Surf Advisory of the year issued by PGUM
Expected (*or actual*) Event Beginning and Ending times of the Advisory: *0200 UTC on March 30*, 2004 and 0200 UTC on April 2, 2004

```
PMZ151-152-153-154-010200-                              (UGC)
/O.CON.PGUM.SU.Y.0006.000000T0000Z-040402T0200Z/        (P-VTEC)
```

Explanation: This event-driven product has a P-VTEC string covering the expected length of the event. This is a follow-up statement, so the CON (continue) Action Code is used. Since the event has already begun (at 0200 UTC on March 30th), the Event Beginning Date/Time Group is encoded as zeros.

Example (3) - Coastal Waters Forecast (CWF) Product

Scenario: Routine Marine forecast with a Cancelled Gale Warning
Issuing Office: WFO Juneau AK (PAJK)
Current time: 1130 UTC on March 8, 2004
Event (Product): Gale Warning (CWF)
Forecast valid for: North Pacific Zone 011
Product expiration time: 0200 UTC on March 9, 2004
Event Tracking Number: 6th Gale Warning of the year issued by PAJK
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0200 UTC on March 8* and 0200 UTC on March 9 2004

```
PKZ011-090200-                                          (UGC)
/O.CAN.PAJK.GL.W.0006.000000T0000Z-040309T0200Z/        (P-VTEC 1)
/O.ROU.PAJK.MA.F.0000.000000T0000Z-000000T0000Z/        (P-VTEC 2)
```

Explanation: The Gale Warning which had been in effect has been cancelled (P-VTEC string 1). Since there are no other valid Warnings or Advisories in effect for this Marine Zone, a P-VTEC string with the ROU action code is included.

b. Multiple Events.

Example - Small Craft Advisory and Severe Thunderstorm Watch

Scenario: Updated Coastal Waters forecast (with Small Craft Advisory) for New Severe Thunderstorm Watch
Issuing Office: WFO Caribou ME (KCAR)
Current time: 1900 UTC on July 13, 2005
Events (Product): Severe Thunderstorm Watch and Small Craft Advisory (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zone 050
Product expiration time: 2100 UTC on July 13, 2005
Event Tracking Numbers: 643rd Watch of the year issued by the SPC (this one for Severe Thunderstorm) and the 49th Small Craft Advisory of the year issued by KCAR
Expected (*or actual*) Event Beginning and Ending times of the
Severe Thunderstorm Watch: *1900 UTC* and 2300 UTC on July 13, 2005
Small Craft Advisory: *1700 UTC on July 13* and 0200 UTC on July 14, 2005

```
ANZ050-132100-                                          (UGC)
/O.NEW.KCAR.SV.A.0643.050713T1900Z-050713T2300Z/        (P-VTEC 1)
/O.CON.KCAR.SC.Y.0049.000000T0000Z-050714T0200Z/        (P-VTEC 2)
```

Explanation: A Small Craft Advisory had already been in effect (P-VTEC string 2), and a new Severe Thunderstorm Watch has been issued by the SPC (P-VTEC string 1). Since the Small Craft Advisory had been valid before this issuance, its beginning event time is set to zeros. After the Small Craft Advisory ends at 0200 UTC, no other W/W/As are expected through the remainder of the five-day forecast period.

c. Change to an Event.

Example (1) - Coastal Flood Warning Product

Scenario: Adding County to an existing Coastal Flood Warning
Issuing Office: WFO Tallahassee FL (KTAE)
Current time: 0600 UTC on July 24, 2004
Event (Product): Coastal Flood Warning (CFW)
Product valid for: Florida Zones 28 and 34
Product expiration time: 1400 UTC on July 24, 2004
Event Tracking Number: 11th Coastal Flood Warning of the year issued by KTAE
Segment 1
Valid for: Florida Zone 28
Expected Event Beginning and Ending times of the Warning: 0700 UTC and 1400 UTC on July 24, 2004
Segment 2
Valid for: Florida Zone 34
Expected Event Beginning and Ending times of the Warning: 0700 UTC and 1400 UTC on July 24, 2004

(segment 1 of 2 within CFW product - extend area of warning)

```
FLZ028-241400-                                          (UGC)
/O.EXA.KTAE.CF.W.0011.040724T0700Z-040724T1400Z/        (P-VTEC)
```

(segment 2 of 2 within CFW product - continued warning)

```
FLZ034-241400-                                          (UGC)
/O.CON.KTAE.CF.W.0011.040724T0700Z-040724T1400Z/        (P-VTEC)
```

Explanation: This event-driven product has a P-VTEC string covering the expected length of the event. Two segments are used, one with the EXA action code for the newly added area, and one with the CON action code for the area being continued. Since the Warning conditions are expected to begin after the product issuance, the Event beginning times are explicitly coded in both P-VTEC strings. Both segments maintain the same ETN (of *0011*) as the original product segment. If another follow-up product is issued, and the entire warning area is being continued, the entire area will appear in one segment with the CON action code.

Example (2) - Tropical Storm Watch changed to Hurricane Watch by the TPC

Scenario: Tropical Storm Watch Changed to Hurricane Watch in Coastal Waters Forecast
Issuing Office: WFO Wilmington NC (KILM)
Current time: 0900 UTC on September 24, 2005
Events (Product):Tropical Storm Watch and Hurricane Watch (CWF)
Forecast valid for: Western North Atlantic Marine Zones 250, 252, 254, 256
Product expiration time: 2100 UTC on September 24, 2005
Event Tracking Numbers: 4th Tropical System of the year for the Atlantic Basin issued by the TPC
(this one was for a Tropical Storm Watch and is now for a Hurricane Watch)
Expected (*or actual*) Event Beginning and Ending times of the
Tropical Storm Watch: 2100 UTC on September 23, 2005 and Until Further Notice *(0900 UTC on September 24, 2005*)
Hurricane Watch: *0900 UTC on September 24, 2005* and Until Further Notice

```
AMZ250-252-254-256-242100-                              (UGC)
/O.CAN.KILM.TR.A.1004.000000T0000Z-000000T0000Z/        (P-VTEC 1)
/O.NEW.KILM.HU.A.1004.050924T0900Z-000000T0000Z/        (P-VTEC 2)
```

Explanation: As "Dennis" nears the Coast, the TPC has changed the Tropical Storm Watch for WFO Wilmington's Coastal Waters to a Hurricane Watch. Both watches use the same ETN of *1004* (*1* for the Atlantic Basin, and *004* for the fourth tropical system of the year in that basin). The Tropical Storm Watch is cancelled (as no upgrades are used in TPC products), and a New Hurricane Watch is issued. Since all of TPCs Watches and Warnings are open-ended, the event ending time for both watches is coded as zeros.

d. Full Event Sequences.

Example (1) - Special Marine Warning and follow-up Marine Weather Statements, including two possible conclusions (Cancel or Expire)

Product 1

Scenario: Initial Warning issuance
Issuing Office: WFO Chicago IL (KLOT)
Current time: 2204 UTC on July 23, 2004
Event (Product): Special Marine Warning (SMW)

Warning issued for: Lake Michigan Zones 740 and 766
Product expiration time: 2300 UTC on July 23, 2004
Event Tracking Number: 34th Special Marine Warning of the year issued by KLOT
Expected (*or actual*) Event Beginning and Ending times of the Warning: *2204 UTC* and 2300 UTC on July 23, 2004

```
LMZ740-766-232300-                                          (UGC)
/O.NEW.KLOT.MA.W.0034.040723T2204Z-040723T2300Z/            (P-VTEC)
```

Explanation: A new Special Marine Warning is issued by WFO Chicago. Since it is a short duration product, the product expiration and event ending times are the same.

Product 2

Scenario: Follow-up statement
Issuing Office: WFO Chicago IL (KLOT)
Current time: 2230 UTC on July 23, 2004
Event (Product): Special Marine Warning (MWS)
Warning continued for: Lake Michigan Zones 740 and 766
Product expiration time: 2300 UTC on July 23, 2004
Event Tracking Number: 34th Special Marine Warning of the year issued by KLOT
Expected (*or actual*) Event Beginning and Ending times of the Warning: *2204 UTC* and 2300 UTC on July 23, 2004

```
LMZ740-766-232300-                                          (UGC)
/O.CON.KLOT.MA.W.0034.000000T0000Z-040723T2300Z/            (P-VTEC)
```

Explanation: In this follow-up statement to the original Special Marine Warning, the same UGC and P-VTEC parameters are used as in the original SMW except for the beginning event time and the action code (now CONtinued), even though this product is issued as a Marine Weather Statement (MWS). The beginning event time is coded as zeros in the P-VTEC string, as the warning was valid (i.e., in effect) before this MWS was issued.

Product 3a

Scenario: Warning is canceled
Issuing Office: WFO Chicago IL (KLOT)
Current time: 2235 UTC on July 23, 2004
Event (Product): Special Marine Warning (MWS)
Warning canceled for: Lake Michigan Zones 740 and 766
Product expiration time: 2300 UTC on July 23, 2004
Event Tracking Number: 34th Special Marine Warning of the year issued by KLOT
Expected (*or actual*) Event Beginning and Ending times of the Warning: *2204 UTC* and 2300 UTC (*2235 UTC*) on July 23, 2004

```
LMZ740-766-232300-                                          (UGC)
/O.CAN.KLOT.MA.W.0034.000000T0000Z-040723T2300Z/            (P-VTEC)
```

Explanation: If the Warning is canceled before it would have ended (i.e., before the event ending time is reached), the CAN action code is used in the P-VTEC string. Even though the warning has been canceled, the original ending event time (2300 UTC on July 23, 2004) is encoded in the P-VTEC string. The remainder of the UGC and P-VTEC coding remains unchanged from the previous message.

Product 3b

Scenario: Warning expires
Issuing Office: WFO Chicago IL (KLOT)
Current time: 2300 UTC on July 23, 2004
Event (Product): Special Marine Warning (MWS)
Warning expired for: Lake Michigan Zones 740 and 766
Product expiration time: 2315 UTC on July 23, 2004
Event Tracking Number: 34th Special Marine Warning of the year issued by KLOT
Expected (*or actual*) Event Beginning and Ending times of the Warning: *2204 UTC* and *2300 UTC on July 23, 2004*

```
LMZ740-766-232315-                                        (UGC)
/O.EXP.KLOT.MA.W.0034.000000T0000Z-040723T2300Z/          (P-VTEC)
```

Explanation: If the Warning was allowed to expire, and an Expiration message is issued, the same P-VTEC coding is used as in the previous cases, except with an action code of EXP. The product expiration time (in the UGC string) is changed to a later time, to allow dissemination of the product via NOAA Weather Radio and other outlets.

Example (2) - Lakeshore Flood situation, from watch to warning to follow-up statements, including two possible conclusions (Cancel or Expire)

Product 1

Scenario: Initial Watch Issuance
Issuing Office: WFO Buffalo NY (KBUF)
Current time: 2040 UTC on March 9, 2004
Event (Product): Lakeshore Flood Watch (CFW)
Watch issued for: New York Zone 10
Product expiration time: 1000 UTC on March 10, 2004
Event Tracking Number: 7th Lakeshore Flood Watch of the year issued by KBUF
Expected Event Beginning and Ending times of the Watch: 0200 UTC and 1000 UTC on March 10, 2004

```
NYZ010-101000-                                            (UGC)
/O.NEW.KBUF.LS.A.0007.040310T0200Z-040310T1000Z/          (P-VTEC)
```

Explanation: A new Lakeshore Flood Watch has been issued by WFO Buffalo.

Product 2

Scenario: Watch is Upgraded to Warning
Issuing Office: WFO Buffalo NY (KBUF)
Current time: 0240 UTC on March 10, 2004
Event (Product): Lakeshore Flood Warning (CFW)
Watch upgraded to a warning for: New York Zone 10
Product expiration time: 1000 UTC on March 10, 2004
Event Tracking Numbers: 7th Lakeshore Flood Watch and 9th Lakeshore Flood Warning of the year issued by KBUF
Expected (*or actual*) Event Beginning and Ending times of the
Watch: 0200 UTC and 1000 UTC (*0240 UTC*) on March 10, 2004
Warning: *0240 UTC* and 1000 UTC on March 10, 2004

```
NYZ010-101000-                                          (UGC)
/O.UPG.KBUF.LS.A.0007.000000T0000Z-040310T1000Z/        (P-VTEC 1)
/O.NEW.KBUF.LS.W.0009.040310T0240Z-040310T1000Z/        (P-VTEC 2)
```

Explanation: The Lakeshore Flood Watch was upgraded to a Warning. This requires two P-VTEC strings: the first to indicate that the Watch is being upgraded, and the second to indicate that it is being upgraded to a Lakeshore Flood Warning. Since the beginning event time of the Watch has already occurred (0200 UTC on March 10, 2004), it is encoded as zeros in P-VTEC string 1.

Product 3

Scenario: Follow-up Statement
Issuing Office: WFO Buffalo NY (KBUF)
Current time: 0540 UTC on March 10, 2004
Event (Product): Lakeshore Flood Warning (CFW)
Warning continued for: New York Zone 10
Product expiration time: 1000 UTC on March 10, 2004
Event Tracking Numbers: 9th Lakeshore Flood Warning of the year issued by KBUF
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0240 UTC* and 1000 UTC on March 10, 2004

```
NYZ010-101000-                                          (UGC)
/O.CON.KBUF.LS.W.0009.000000T0000Z-040310T1000Z/        (P-VTEC)
```

Explanation: In this follow-up statement to the original Lakeshore Flood Warning, the same UGC and P-VTEC parameters are used for the Warning event, except for the beginning event time (now as coded as zeros) and the action code (which is now CONtinued).

Product 4a

Scenario: Warning is canceled
Issuing Office: WFO Buffalo NY (KBUF)
Current time: 0740 UTC on March 10, 2004
Event (Product): Lakeshore Flood Warning (CFW)
Warning canceled for: New York Zone 10
Product expiration time: 0810 UTC on March 10, 2004
Event Tracking Number: 9th Lakeshore Flood Warning of the year issued by KBUF
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0240 UTC* and 1000 UTC (*0740 UTC*) on March 10, 2004

```
NYZ010-100810-                                          (UGC)
/O.CAN.KBUF.LS.W.0009.000000T0000Z-040310T1000Z/        (P-VTEC)
```

Explanation: If the Warning is canceled before it would have ended (i.e., before the event ending time is reached), the CAN action code is used in the P-VTEC string. Even though the warning has been canceled, the original ending event time (1000 UTC on July 23, 2004) is encoded in the P-VTEC string. However, the product expiration time in the UGC coding has been changed. In this long-duration event, the canceled product needs to be broadcast via NOAA Weather Radio and other outlets, but the product expiration time is well before the original time of 1000 UTC.

Product 4b

Scenario: Warning expires
Issuing Office: WFO Buffalo NY (KBUF)
Current time: 1000 UTC on March 10, 2004
Event (Product): Lakeshore Flood Warning (CFW)

Warning expired for: New York Zone 10
Product expiration time: 1030 UTC on March 10, 2004
Event Tracking Number: 9th Lakeshore Flood Warning of the year issued by KBUF
Expected (*or actual*) Event Beginning and Ending times of the Warning: *0240 UTC* and *1000 UTC on March 10, 2004*

```
NYZ010-101030-                                          (UGC)
/O.EXP.KBUF.LS.W.0009.000000T0000Z-040310T1000Z/        (P-VTEC)
```

Explanation: If the Warning was allowed to expire, and an Expiration message is issued, the same P-VTEC coding is used as in the previous cases, except with an action code of EXP. The product expiration time (in the UGC string) is changed to a later time, to allow dissemination of the product via NOAA Weather Radio and other outlets.

Example (3) - Routine Marine Forecasts, showing Small Craft Advisory, Gale Warning, and Storm Warning events

Product 1

Scenario: Continued Small Craft Advisory for Part of Area, New Future Gale Warning for Entire Area
Issuing Office: WFO Upton NY (KOKX)
Current time: 1520 UTC on January 21, 2005
Events (Product): Small Craft Advisory and Gale Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 2130 UTC on January 21, 2005
Event Tracking Numbers: 4th Small Craft Advisory and 2nd Gale Warning of the year issued by KOKX
Segment 1
- Valid for: Northwestern North Atlantic Marine Zones 350, 353, and 355
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Small Craft Advisory: *2300 UTC on January 19* and 0500 UTC on January 22, 2005
  - Gale Warning: 2300 UTC on January 22 and 2300 UTC on January 23, 2005

Segment 2
- Valid for: Northwestern North Atlantic Marine Zones 330 and 335
- Expected Event Beginning and Ending times of the Gale Warning: 2300 UTC on January 22 and 1700 UTC on January 23, 2005

Segment 3
- Valid for: Northwestern North Atlantic Marine Zone 338
- Expected Event Beginning and Ending times of the Gale Warning: 0500 UTC and 1700 UTC on January 23, 2005

(segment 1 of 3 within CWF product)

```
ANZ350-353-355-212130-                                  (UGC)
/O.CON.KOKX.SC.Y.0004.000000T0000Z-050122T0500Z/        (P-VTEC 1)
/O.NEW.KOKX.GL.W.0002.050122T2300Z-050123T2300Z/        (P-VTEC 2)
```

(segment 2 of 3 within CWF product)

```
ANZ330-335-212130-                                      (UGC)
/O.NEW.KOKX.GL.W.0002.050122T2300Z-050123T1700Z/        (P-VTEC)
```

(segment 3 of 3 within CWF product)

```
ANZ338-212130-                                          (UGC)
/O.NEW.KOKX.GL.W.0002.050123T0500Z-050123T1700Z/        (P-VTEC)
```

Explanation: A Small Craft Advisory (ETN *0004*) has been in effect for a portion of the marine area (Segment 1). Since the Small Craft event began over 24 hours ago, the event beginning time is zeroed out. A new Gale Warning (ETN *0002*) has just been added for all the zones beginning in the fourth forecast period (at 2300 UTC on the 22nd for the first two segments and at 0500 UTC on the 23rd for the third segment).

Product 2

Scenario: Continued Small Craft Advisory for Part of Area, Future Gale Warning Across Entire Area Upgraded to Storm Warning for Part of Area and Extended in Time for Rest of Area
Issuing Office: WFO Upton NY (KOKX)
Current time: 2115 UTC on January 21, 2005
Events (Product): Small Craft Advisory, Gale Warning, Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 0400 UTC on January 22, 2005
Event Tracking Numbers: 4th Small Craft Advisory, 2nd Gale Warning, and 1st Storm Warning of the year issued by KOKX
Segment 1
Valid for: Northwestern North Atlantic Marine Zones 350, 353, and 355
Expected (*or actual*) Event Beginning and Ending times of the:
Small Craft Advisory: *2300 UTC on January 19* and 0500 UTC on January 22, 2005
Gale Warning: 2300 UTC on January 22 and 2300 UTC on January 23, 2005 (*upgraded before it began*)
Storm Warning: 0500 UTC and 1700 UTC on January 23, 2005
Segment 2
Valid for: Northwestern North Atlantic Marine Zones 330 and 335
Expected Event Beginning and Ending times of the
Gale Warning: 2300 UTC on January 22 and 1700 UTC on January 23, 2005 (*upgraded before it began*)
Storm Warning: 0500 UTC and 1100 UTC on January 23, 2005
Segment 3
Valid for: Northwestern North Atlantic Marine Zone 338
Expected Event Beginning and Ending times of the Gale Warning: 2300 UTC on January 22 and 1700 UTC on January 23, 2005

(segment 1 of 3 within CWF product)

```
ANZ350-353-355-220400-                                  (UGC)
/O.CON.KOKX.SC.Y.0004.000000T0000Z-050122T0500Z/        (P-VTEC 1)
/O.UPG.KOKX.GL.W.0002.050122T2300Z-050123T2300Z/        (P-VTEC 2)
/O.NEW.KOKX.SR.W.0001.050123T0500Z-050123T1700Z/        (P-VTEC 3)
```

(segment 2 of 3 within CWF product)

```
ANZ330-335-220400-                                      (UGC)
/O.UPG.KOKX.GL.W.0002.050122T2300Z-050123T1700Z/        (P-VTEC 1)
/O.NEW.KOKX.SR.W.0001.050123T0500Z-050123T1100Z/        (P-VTEC 2)
```

(segment 3 of 3 within CWF product)

```
ANZ338-220400-                                          (UGC)
/O.EXT.KOKX.GL.W.0002.050122T2300Z-050123T1700Z/        (P-VTEC)
```

Explanation: With this issuance, the Gale Warning is being upgraded to a Storm Warning (ETN *0001*) in two of the segments. The Small Craft Advisory is continued in the first segment.

Product 3

Scenario: No Changes from Previous Issuance
Issuing Office: WFO Upton NY (KOKX)
Current time: 0335 UTC on January 22, 2005
Events (Product): Small Craft Advisory, Gale Warning, Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1000 UTC on January 22, 2005
Event Tracking Numbers: 4th Small Craft Advisory, 2nd Gale Warning, and 1st Storm Warning of the year issued by KOKX
Segment 1
Valid for: Northwestern North Atlantic Marine Zones 350, 353, and 355
Expected (*or actual*) Event Beginning and Ending times of the:
Small Craft Advisory: *2300 UTC on January 19* and 0500 UTC on January 22, 2005
Storm Warning: 0500 UTC and 1700 UTC on January 23, 2005
Segment 2
Valid for: Northwestern North Atlantic Marine Zones 330 and 335
Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 1100 UTC on January 23, 2005
Segment 3
Valid for: Northwestern North Atlantic Marine Zone 338
Expected Event Beginning and Ending times of the Gale Warning: 2300 UTC on January 22 and 1700 UTC on January 23, 2005

(segment 1 of 3 within CWF product)

```
ANZ350-353-355-221000-                                  (UGC)
/O.CON.KOKX.SC.Y.0004.000000T0000Z-050122T0500Z/        (P-VTEC 1)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T1700Z/        (P-VTEC 2)
```

(segment 2 of 3 within CWF product)

```
ANZ330-335-221000-                                      (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T1100Z/        (P-VTEC)
```

(segment 3 of 3 within CWF product)

```
ANZ338-221000-                                          (UGC)
/O.CON.KOKX.GL.W.0002.050122T2300Z-050123T1700Z/        (P-VTEC)
```

Explanation: There are no changes to the events or their timing in this issuance. However, the segments which had been *NEW* now use the *CON* action code.

Product 4

Scenario: One Segment is Split, Small Craft has Expired
Issuing Office: WFO Upton NY (KOKX)
Current time: 0920 UTC on January 22, 2005
Events (Product): Gale Warning and Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1600 UTC on January 22, 2005
Event Tracking Numbers: 2nd Gale Warning and 1st Storm Warning of the year issued by KOKX
Segment 1
Valid for: Northwestern North Atlantic Marine Zones 350, 353, and 355
Expected Event Beginning and Ending times of the Storm Warning: 0800 UTC and 2300 UTC on January 23, 2005
Segment 2
Valid for: Northwestern North Atlantic Marine Zone 335

Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 2300 UTC on January 23, 2005

Segment 3

Valid for: Northwestern North Atlantic Marine Zone 330

Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 2300 UTC on January 23, 2005

Segment 4

Valid for: Northwestern North Atlantic Marine Zone 338

Expected Event Beginning and Ending times of the Gale Warning: 0800 UTC and 2300 UTC on January 23, 2005

(segment 1 of 4 within CWF product)

```
ANZ350-353-355-221600-                                  (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0800Z-050123T2300Z/        (P-VTEC)
```

(segment 2 of 4 within CWF product)

```
ANZ335-221600-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0500Z-050123T2300Z/        (P-VTEC)
```

(segment 3 of 4 within CWF product)

```
ANZ330-221600-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0500Z-050123T2300Z/        (P-VTEC)
```

(segment 4 of 4 within CWF product)

```
ANZ338-221600-                                          (UGC)
/O.EXT.KOKX.GL.W.0002.050123T0800Z-050123T2300Z/        (P-VTEC)
```

Explanation: At the next forecast issuance, the two zones which had been included in Segment 2 are split into separate segments because of differences in the forecast which do no affect the VTEC coding. The Small Craft Advisory which had been in Segment 1 ended at 0500 UTC and is no longer mentioned in the forecast. Since the beginning and/or ending times of the Gale and Storm Warnings have been changed, all four segments use the *EXT* action code.

Product 5

Scenario: No Changes from Previous Issuance
Issuing Office: WFO Upton NY (KOKX)
Current time: 1535 UTC on January 22, 2005
Events (Product): Gale Warning and Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1600 UTC on January 22, 2005
Event Tracking Numbers: 2nd Gale Warning and 1st Storm Warning of the year issued by KOKX
Segment 1

Valid for: Northwestern North Atlantic Marine Zones 350, 353, and 355

Expected Event Beginning and Ending times of the Storm Warning: 0800 UTC and 2300 UTC on January 23, 2005

Segment 2

Valid for: Northwestern North Atlantic Marine Zone 335

Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 2300 UTC on January 23, 2005

Segment 3

Valid for: Northwestern North Atlantic Marine Zone 330

Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 2300 UTC on January 23, 2005

Segment 4

Valid for: Northwestern North Atlantic Marine Zone 338

Expected Event Beginning and Ending times of the Gale Warning: 0800 UTC and 2300 UTC on January 23, 2005

(segment 1 of 4 within CWF product)

```
ANZ350-353-355-221600-                                  (UGC)
/O.CON.KOKX.SR.W.0001.050123T0800Z-050123T2300Z/        (P-VTEC)
```

(segment 2 of 4 within CWF product)

```
ANZ335-221600-                                          (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T2300Z/        (P-VTEC)
```

(segment 3 of 4 within CWF product)

```
ANZ330-221600-                                          (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T2300Z/        (P-VTEC)
```

(segment 4 of 4 within CWF product)

```
ANZ338-221600-                                          (UGC)
/O.CON.KOKX.GL.W.0002.050123T0800Z-050123T2300Z/        (P-VTEC)
```

Explanation: There are no changes in the valid times of the Gale and Storm Warnings in this issuance, so all the segments use the *CON* action code. Note that the product expiration time for each segment (in the UGC strings) was inadvertently left the same as in the previous issuance.

Product 6

Scenario: Product Expiration Time in Each Segment is Corrected
Issuing Office: WFO Upton NY (KOKX)
Current time: 1755 UTC on January 22, 2005
Events (Product): Gale Warning and Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 2330 UTC on January 22, 2005
Event Tracking Numbers: 2nd Gale Warning and 1st Storm Warning of the year issued by KOKX
Segment 1
Valid for: Northwestern North Atlantic Marine Zones 350, 353, and 355
Expected Event Beginning and Ending times of the Storm Warning: 0800 UTC and 2300 UTC on January 23, 2005
Segment 2
Valid for: Northwestern North Atlantic Marine Zones 330 and 335
Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 2300 UTC on January 23, 2005
Segment 3
Valid for: Northwestern North Atlantic Marine Zone 330
Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 2300 UTC on January 23, 2005
Segment 4
Valid for: Northwestern North Atlantic Marine Zone 338
Expected Event Beginning and Ending times of the Gale Warning: 0800 UTC and 2300 UTC on January 23, 2005

(segment 1 of 4 within CWF product)

```
ANZ350-353-355-222330-                                  (UGC)
/O.CON.KOKX.SR.W.0001.050123T0800Z-050123T2300Z/        (P-VTEC)
```

(segment 2 of 4 within CWF product)

```
ANZ335-222330-                                          (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T2300Z/        (P-VTEC)
```

(segment 3 of 4 within CWF product)
```
ANZ330-222330-                                          (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T2300Z/        (P-VTEC)
```

(segment 4 of 4 within CWF product)
```
ANZ338-222330-                                          (UGC)
/O.CON.KOKX.GL.W.0002.050123T0800Z-050123T2300Z/        (P-VTEC)
```

Explanation: The forecast is corrected to extend the product expiration time, which was left unchanged in the previous issuance. Since the VTEC events were still valid and the error was in the UGC coding, the *CON* action code is used for all segments with the same ETNs as before.

Product 7

Scenario: Event Valid Times Changed and Another Segment Split
Issuing Office: WFO Upton NY (KOKX)
Current time: 2300 UTC on January 22, 2005
Events (Product): Gale Warning and Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 0400 UTC on January 23, 2005
Event Tracking Numbers: 2nd Gale Warning and 1st Storm Warning of the year issued by KOKX
Segment 1
- Valid for: Northwestern North Atlantic Marine Zone 350
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC on January 23 and 0500 UTC on January 24, 2005

Segment 2
- Valid for: Northwestern North Atlantic Marine Zones 353 and 355
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC on January 23 and 0500 UTC on January 24, 2005

Segment 3
- Valid for: Northwestern North Atlantic Marine Zone 330
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 1700 UTC on January 23, 2005

Segment 4
- Valid for: Northwestern North Atlantic Marine Zone 335
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 1700 UTC on January 23, 2005

Segment 5
- Valid for: Northwestern North Atlantic Marine Zone 338
- Expected (*or actual*) Event Beginning and Ending times of the Gale Warning: *2300 UTC on January 22* and 1700 UTC on January 23, 2005

(segment 1 of 5 within CWF product)
```
ANZ350-230400-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0500Z-050124T0500Z/        (P-VTEC)
```

(segment 2 of 5 within CWF product)
```
ANZ353-355-230400-                                      (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0500Z-050124T0500Z/        (P-VTEC)
```

(segment 3 of 5 within CWF product)
```
ANZ330-230400-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0500Z-050123T1700Z/        (P-VTEC)
```

(segment 4 of 5 within CWF product)
```
ANZ335-230400-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.050123T0500Z-050123T1700Z/        (P-VTEC)
```

(segment 5 of 5 within CWF product)
```
ANZ338-230400-                                          (UGC)
/O.EXT.KOKX.GL.W.0002.050122T2300Z-050123T1700Z/        (P-VTEC)
```

Explanation: The Gale Warning conditions have begun in Segment 5, so the Event Beginning Time is moved ahead to the present (issuance) time. The first segment in the previous issuance is split into two for differences which do not affect the VTEC coding. Since the valid beginning and/or ending times of the Gale and Storm Warnings have changed in each segment, all the P-VTEC strings use the *EXT* code.

Product 8

Scenario: No Changes from Previous Issuance
Issuing Office: WFO Upton NY (KOKX)
Current time: 0235 UTC on January 23, 2005
Events (Product): Gale Warning and Storm Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1100 UTC on January 23, 2005
Event Tracking Numbers: 2nd Gale Warning and 1st Storm Warning of the year issued by KOKX
Segment 1
- Valid for: Northwestern North Atlantic Marine Zone 350
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC on January 23 and 0500 UTC on January 24, 2005

Segment 2
- Valid for: Northwestern North Atlantic Marine Zones 353 and 355
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC on January 23 and 0500 UTC on January 24, 2005

Segment 3
- Valid for: Northwestern North Atlantic Marine Zone 330
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 1700 UTC on January 23, 2005

Segment 4
- Valid for: Northwestern North Atlantic Marine Zone 335
- Expected Event Beginning and Ending times of the Storm Warning: 0500 UTC and 1700 UTC on January 23, 2005

Segment 5
- Valid for: Northwestern North Atlantic Marine Zone 338
- Expected (*or actual*) Event Beginning and Ending times of the Gale Warning: *2300 UTC on January 22* and 1700 UTC on January 23, 2005

(segment 1 of 5 within CWF product)
```
ANZ350-231000-                                          (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050124T0500Z/        (P-VTEC)
```

(segment 2 of 5 within CWF product)
```
ANZ353-355-231000-                                      (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050124T0500Z/        (P-VTEC)
```

(segment 3 of 5 within CWF product)
```
ANZ330-231000-                                          (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T1700Z/        (P-VTEC)
```

(segment 4 of 5 within CWF product)
ANZ335-231000- (UGC)
/O.CON.KOKX.SR.W.0001.050123T0500Z-050123T1700Z/ (P-VTEC)

(segment 5 of 5 within CWF product)
ANZ338-231000- (UGC)
/O.CON.KOKX.GL.W.0002.000000T0000Z-050123T1700Z/ (P-VTEC)

Explanation: There are no changes made with the late evening forecast. The only differences in the VTEC coding are to use the *CON* action code in all segments, and to zero out the beginning time of the Gale Warning in Segment 5 as the Event Beginning Time of 2300 UTC on the 22nd used in the previous issuance has passed.

Product 9

Scenario: Changes to Event Ending Times, Gale Warning Upgraded to Storm Warning, Heavy Freezing Spray Warning Issued for Part of Area
Issuing Office: WFO Upton NY (KOKX)
Current time: 1030 UTC on January 23, 2005
Events (Product): Gale Warning, Storm Warning and Heavy Freezing Spray Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1600 UTC on January 23, 2005
Event Tracking Numbers: 2nd Gale Warning, 1st Storm Warning, and 1st Heavy Freezing Spray Warning of the year issued by KOKX
Segment 1
Valid for: Northwestern North Atlantic Marine Zone 350
Expected (*or actual*) Event Beginning and Ending times of the Storm Warning: *0500 UTC on January 23* and 1100 UTC on January 24, 2005
Segment 2
Valid for: Northwestern North Atlantic Marine Zones 353 and 355
Expected (*or actual*) Event Beginning and Ending times of the Storm Warning: *0500 UTC on January 23* and 2300 UTC on January 23, 2005
Segment 3
Valid for: Northwestern North Atlantic Marine Zone 330
Expected (*or actual*) Event Beginning and Ending times of the:
Storm Warning: *0500 UTC on January 23* and 2300 UTC on January 23, 2005
Heavy Freezing Spray Warning: *1030 UTC on January 23* and 1100 UTC on January 24, 2005
Segment 4
Valid for: Northwestern North Atlantic Marine Zone 335
Expected (*or actual*) Event Beginning and Ending times of the:
Storm Warning: *0500 UTC on January 23* and 2300 UTC on January 23, 2005
Heavy Freezing Spray Warning: *1030 UTC on January 23* and 1100 UTC on January 24, 2005
Segment 5
Valid for: Northwestern North Atlantic Marine Zone 338
Expected (*or actual*) Event Beginning and Ending times of the:
Gale Warning: *2300 UTC on January 22* and 1700 UTC (*1030 UTC*) on January 23, 2005
Storm Warning: *1030 UTC on January 23* and 2300 UTC on January 23, 2005

(segment 1 of 5 within CWF product)
ANZ350-231700- (UGC)
/O.EXT.KOKX.SR.W.0001.000000T0000Z-050124T1100Z/ (P-VTEC)

(segment 2 of 5 within CWF product)

```
ANZ353-355-231700-                                      (UGC)
/O.EXT.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/        (P-VTEC)
```

(segment 3 of 5 within CWF product)

```
ANZ330-231700-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/        (P-VTEC 1)
/O.NEW.KOKX.UP.W.0001.050123T1030Z-050124T1100Z/        (P-VTEC 2)
```

(segment 4 of 5 within CWF product)

```
ANZ335-231700-                                          (UGC)
/O.EXT.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/        (P-VTEC 1)
/O.NEW.KOKX.UP.W.0001.050123T1030Z-050124T1100Z/        (P-VTEC 2)
```

(segment 5 of 5 within CWF product)

```
ANZ338-231700-                                          (UGC)
/O.UPG.KOKX.GL.W.0002.000000T0000Z-050123T1700Z/        (P-VTEC 1)
/O.NEW.KOKX.SR.W.0001.050123T1030Z-050123T2300Z/        (P-VTEC 2)
```

Explanation: A Heavy Freezing Spray Warning (*UP.W*) is introduced in Segments 3 and 4. The Gale Warning in Segment 5 is upgraded to a Storm Warning. Since there is a Storm Warning in effect in the other segments, the same ETN (*0001*) is used. The ending time of the Storm Warning was changed in Segments 1 through 4, necessitating the use of the *EXT* action code.

Product 10

Scenario: No Changes to Previous Issuance
Issuing Office: WFO Upton NY (KOKX)
Current time: 1625 UTC on January 23, 2005
Events (Product): Storm Warning and Heavy Freezing Spray Warning (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 2200 UTC on January 23, 2005
Event Tracking Numbers: 1st Storm Warning, and 1st Heavy Freezing Spray Warning of the year issued by KOKX

Segment 1
- Valid for: Northwestern North Atlantic Marine Zone 350
- Expected (*or actual*) Event Beginning and Ending times of the Storm Warning: *0500 UTC on January 23* and 1100 UTC on January 24, 2005

Segment 2
- Valid for: Northwestern North Atlantic Marine Zones 353 and 355
- Expected (*or actual*) Event Beginning and Ending times of the Storm Warning: *0500 UTC on January 23* and 2300 UTC on January 23, 2005

Segment 3
- Valid for: Northwestern North Atlantic Marine Zone 330
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Storm Warning: *0500 UTC on January 23* and 2300 UTC on January 23, 2005
  - Heavy Freezing Spray Warning: *1030 UTC on January 23* and 1100 UTC on January 24, 2005

Segment 4
- Valid for: Northwestern North Atlantic Marine Zone 335
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Storm Warning: *0500 UTC on January 23* and 2300 UTC on January 23, 2005
  - Heavy Freezing Spray Warning: *1030 UTC on January 23* and 1100 UTC on January 24, 2005

Segment 5
- Valid for: Northwestern North Atlantic Marine Zone 338

Expected (*or actual*) Event Beginning and Ending times of the Storm Warning: *1030 UTC on January 23* and 2300 UTC on January 23, 2005

```
(segment 1 of 5 within CWF product)
ANZ350-232200-                                          (UGC)
/O.CON.KOKX.SR.W.0001.000000T0000Z-050124T1100Z/         (P-VTEC)

(segment 2 of 5 within CWF product)
ANZ353-355-232200-                                      (UGC)
/O.CON.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC)

(segment 3 of 5 within CWF product)
ANZ330-232200-                                          (UGC)
/O.CON.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC 1)
/O.CON.KOKX.UP.W.0001.000000T0000Z-050124T1100Z/         (P-VTEC 2)

(segment 4 of 5 within CWF product)
ANZ335-232200-                                          (UGC)
/O.CON.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC 1)
/O.CON.KOKX.UP.W.0001.000000T0000Z-050124T1100Z/         (P-VTEC 2)

(segment 5 of 5 within CWF product)
ANZ338-232200-                                          (UGC)
/O.CON.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC)
```

Explanation: No timing changes are made in this issuance, although there are changes to some of the P-VTEC strings. All the segments in the previous issuance now use the *CON* action code and have their event beginning time zeroed out.

Product 11

Scenario: Storm Warning Downgraded to Gale Warning, Heavy Freezing Spray Warning Cancelled, Future Gale Warning Issued

Issuing Office: WFO Upton NY (KOKX)
Current time: 2140 UTC on January 23, 2005
Events (Product): Storm Warning, Heavy Freezing Spray Warning, Gale Warnings (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 0400 UTC on January 24, 2005
Event Tracking Numbers: 1st Storm Warning, 1st Heavy Freezing Spray Warning and 3rd and 4th Gale Warnings of the year issued by KOKX

Segment 1

Valid for: Northwestern North Atlantic Marine Zone 350
Expected (*or actual*) Event Beginning and Ending times of the
Storm Warning: *0500 UTC on January 23* and 1100 UTC on January 24, 2005 (*2140 UTC on January 23, 2005*)
Gale Warning [0003]: *2140 UTC on January 23* and 0800 UTC on January 24, 2005
Gale Warning [0004]: 2300 UTC on January 24 and 1100 UTC on January 25, 2005

Segment 2

Valid for: Northwestern North Atlantic Marine Zones 353 and 355
Expected (*or actual*) Event Beginning and Ending times of the
Storm Warning: *0500 UTC on January 23* and 2300 UTC (*2140 UTC*) on January 23, 2005
Gale Warning [0003]: *2140 UTC on January 23* and 1100 UTC on January 24, 2005

Gale Warning [0004]: 2300 UTC on January 24 and 1100 UTC on January 25, 2005

Segment 3

Valid for: Northwestern North Atlantic Marine Zone 330

Expected (*or actual*) Event Beginning and Ending times of the:

Storm Warning: *0500 UTC* and 2300 UTC (*2140 UTC*) on January 23, 2005

Gale Warning [0003]: 2140 UTC on January 23 and 0800 UTC on January 24, 2005

Heavy Freezing Spray Warning: *1030 UTC on January 23* and 1100 UTC on January 24, 2005 (*2140 UTC on January 23, 2005*)

Segment 4

Valid for: Northwestern North Atlantic Marine Zone 335

Expected (*or actual*) Event Beginning and Ending times of the:

Storm Warning: *0500 UTC* and 2300 UTC (*2140 UTC*) on January 23, 2005

Gale Warning [0003]: 2140 UTC on January 23 and 0800 UTC on January 24, 2005

Heavy Freezing Spray Warning: *1030 UTC on January 23* and 1100 UTC on January 24, 2005 (*2140 UTC on January 23, 2005*)

Segment 5

Valid for: Northwestern North Atlantic Marine Zone 338

Expected (*or actual*) Event Beginning and Ending times of the:

Storm Warning: *1030 UTC* and 2300 UTC (*2140 UTC*) on January 23, 2005

Gale Warning [0003]: *2140 UTC on January 23* and 0800 UTC on January 24, 2005

(segment 1 of 5 within CWF product)

```
ANZ350-240400-                                          (UGC)
/O.CAN.KOKX.SR.W.0001.000000T0000Z-050124T1100Z/         (P-VTEC 1)
/O.NEW.KOKX.GL.W.0003.050123T2140Z-050124T0800Z/         (P-VTEC 2)
/O.NEW.KOKX.GL.W.0004.050124T2300Z-050125T1100Z/         (P-VTEC 3)
```

(segment 2 of 5 within CWF product)

```
ANZ353-355-240400-                                      (UGC)
/O.CAN.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC 1)
/O.NEW.KOKX.GL.W.0003.050123T2140Z-050124T1100Z/         (P-VTEC 2)
/O.NEW.KOKX.GL.W.0004.050124T2300Z-050125T1100Z/         (P-VTEC 3)
```

(segment 3 of 5 within CWF product)

```
ANZ330-240400-                                          (UGC)
/O.CAN.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC 1)
/O.NEW.KOKX.GL.W.0003.050123T2140Z-050124T0800Z/         (P-VTEC 2)
/O.CAN.KOKX.UP.W.0001.000000T0000Z-050124T1100Z/         (P-VTEC 3)
```

(segment 4 of 5 within CWF product)

```
ANZ335-240400-                                          (UGC)
/O.CAN.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC 1)
/O.NEW.KOKX.GL.W.0003.050123T2140Z-050124T0800Z/         (P-VTEC 2)
/O.CAN.KOKX.UP.W.0001.000000T0000Z-050124T1100Z/         (P-VTEC 3)
```

(segment 5 of 5 within CWF product)

```
ANZ338-240400-                                          (UGC)
/O.CAN.KOKX.SR.W.0001.000000T0000Z-050123T2300Z/         (P-VTEC 1)
/O.NEW.KOKX.GL.W.0003.050123T2140Z-050124T0800Z/         (P-VTEC 2)
```

Explanation: At this issuance, the Storm Warnings are all downgraded to Gale Warnings (ETN *0003*), and an additional Gale Warning (ETN *0004*) is issued for two of the segments for the

following day. Since there is no time overlap between the two Gales, they are assigned different ETNs. The Heavy Freezing Spray Warning is also cancelled.

Product 12

Scenario: Minor Timing Change to Gale Warning in One Segment
Issuing Office: WFO Upton NY (KOKX)
Current time: 0240 UTC on January 24, 2005
Events (Product): Gale Warnings (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1100 UTC on January 24, 2005
Event Tracking Numbers: 3rd and 4th Gale Warnings of the year issued by KOKX
Segment 1
- Valid for: Northwestern North Atlantic Marine Zone 350
- Expected (*or actual*) Event Beginning and Ending times of the
  - Gale Warning [0003]: *2140 UTC on January 23* and 1100 UTC on January 24, 2005
  - Gale Warning [0004]: 2300 UTC on January 24 and 1100 UTC on January 25, 2005

Segment 2
- Valid for: Northwestern North Atlantic Marine Zones 353 and 355
- Expected (*or actual*) Event Beginning and Ending times of the
  - Gale Warning [0003]: *2140 UTC on January 23* and 1100 UTC on January 24, 2005
  - Gale Warning [0004]: 2300 UTC on January 24 and 1100 UTC on January 25, 2005

Segment 3
- Valid for: Northwestern North Atlantic Marine Zone 330
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Gale Warning [0003]: *2140 UTC on January 23* and 0800 UTC on January 24, 2005

Segment 4
- Valid for: Northwestern North Atlantic Marine Zone 335
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Gale Warning [0003]: *2140 UTC on January 23* and 0800 UTC on January 24, 2005

Segment 5
- Valid for: Northwestern North Atlantic Marine Zone 338
- Expected (*or actual*) Event Beginning and Ending times of the:
  - Gale Warning [0003]: *2140 UTC on January 23* and 0800 UTC on January 24, 2005

(segment 1 of 5 within CWF product)

```
ANZ350-241100-                                          (UGC)
/O.EXT.KOKX.GL.W.0003.000000T0000Z-050124T1100Z/        (P-VTEC 1)
/O.CON.KOKX.GL.W.0004.050124T2300Z-050125T1100Z/        (P-VTEC 2)
```

(segment 2 of 5 within CWF product)

```
ANZ353-355-241100-                                      (UGC)
/O.CON.KOKX.GL.W.0003.000000T0000Z-050124T1100Z/        (P-VTEC 1)
/O.CON.KOKX.GL.W.0004.050124T2300Z-050125T1100Z/        (P-VTEC 2)
```

(segment 3 of 5 within CWF product)

```
ANZ330-241100-                                          (UGC)
/O.CON.KOKX.GL.W.0003.000000T0000Z-050124T0800Z/        (P-VTEC)
```

(segment 4 of 5 within CWF product)
```
ANZ335-241100-                                          (UGC)
/O.CON.KOKX.GL.W.0003.000000T0000Z-050124T0800Z/        (P-VTEC)
```

(segment 5 of 5 within CWF product)
```
ANZ338-241100-                                          (UGC)
/O.CON.KOKX.GL.W.0003.000000T0000Z-050124T0800Z/        (P-VTEC)
```

Explanation: The only change in this issuance is to adjust the ending time of Gale Warning *0003* in the first segment. That P-VTEC string uses the *EXT* action code while all the rest use *CON*. The ETN *0003* Gale Warnings all began at 2140 UTC on the 23rd so their Event Beginning Times are now all set to zeroes.

Product 13

Scenario: Most Gale Warnings Cancelled or Have Expired, Small Craft Advisories Issued
Issuing Office: WFO Upton NY (KOKX)
Current time: 1000 UTC on January 24, 2005
Events (Product): Gale Warnings, Small Craft Advisory (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 1600 UTC on January 24, 2005
Event Tracking Numbers: 3rd and 4th Gale Warnings and 5th Small Craft Advisory of the year issued by KOKX

Segment 1
- Valid for: Northwestern North Atlantic Marine Zones 350 and 353
- Expected (*or actual*) Event Beginning and Ending times of the
  - Gale Warning [0003]: *2140 UTC on January 23* and 1400 UTC on January 24, 2005
  - Gale Warning [0004]: 2300 UTC on January 24 and 1100 UTC on January 25, 2005 (*downgraded before it began*)
  - Small Craft Advisory: 1400 UTC on January 24 and 2300 UTC on January 25, 2005

Segment 2
- Valid for: Northwestern North Atlantic Marine Zone 355
- Expected (*or actual*) Event Beginning and Ending times of the
  - Gale Warning [0003]: *2140 UTC on January 23* and 1100 UTC (*1000 UTC*) on January 24, 2005
  - Small Craft Advisory: *1000 UTC on January 24* and 2300 UTC on January 25, 2005
  - Gale Warning [0004]: 2300 UTC on January 24 and 1100 UTC on January 25, 2005 (*cancelled before it began*)

Segment 3
- Valid for: Northwestern North Atlantic Marine Zone 330
- Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory: *1000 UTC* and 1700 UTC on January 24, and again 1700 UTC and 2300 UTC on January 25, 2005

Segment 4
- Valid for: Northwestern North Atlantic Marine Zone 335
- Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory: *1000 UTC* and 1700 UTC on January 24, and again 1100 UTC and 2300 UTC on January 25, 2005

Segment 5
- Valid for: Northwestern North Atlantic Marine Zone 338

Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory:
1000 UTC and 1700 UTC on January 24, and again 1100 UTC and 2300 UTC on January 25, 2005

(segment 1 of 5 within CWF product)

```
ANZ350-353-241600-                                      (UGC)
/O.EXT.KOKX.GL.W.0003.000000T0000Z-050124T1400Z/        (P-VTEC 1)
/O.CAN.KOKX.GL.W.0004.050124T2300Z-050125T1100Z/        (P-VTEC 2)
/O.NEW.KOKX.SC.Y.0005.050124T1400Z-050125T2300Z/        (P-VTEC 3)
```

(segment 2 of 5 within CWF product)

```
ANZ355-241600-                                          (UGC)
/O.CAN.KOKX.GL.W.0003.000000T0000Z-050124T1100Z/        (P-VTEC 1)
/O.NEW.KOKX.SC.Y.0005.050124T1000Z-050125T2300Z/        (P-VTEC 2)
/O.CAN.KOKX.GL.W.0004.050124T2300Z-050125T1100Z/        (P-VTEC 3)
```

(segment 3 of 5 within CWF product)

```
ANZ330-241600-                                          (UGC)
/O.NEW.KOKX.SC.Y.0005.050124T1000Z-050124T1700Z/        (P-VTEC 1)
/O.NEW.KOKX.SC.Y.0005.050125T1700Z-050125T2300Z/        (P-VTEC 2)
```

(segment 4 of 5 within CWF product)

```
ANZ335-241600-                                          (UGC)
/O.NEW.KOKX.SC.Y.0005.050124T1000Z-050124T1700Z/        (P-VTEC 1)
/O.NEW.KOKX.SC.Y.0005.050125T1100Z-050125T2300Z/        (P-VTEC 2)
```

(segment 5 of 5 within CWF product)

```
ANZ338-241600-                                          (UGC)
/O.NEW.KOKX.SC.Y.0005.050124T1000Z-050124T1700Z/        (P-VTEC 1)
/O.NEW.KOKX.SC.Y.0005.050125T1100Z-050125T2300Z/        (P-VTEC 2)
```

Explanation: The current Gale Warning (ETN *0003*) had expired in Segments 3, 4 and 5, it was cancelled in Segment 2, and it was extended a few hours in Segment 1. The future Gale Warning (ETN *0004*) has been downgraded to a Small Craft Advisory. The Small Craft conditions are valid for over 24 hours in Segments 1 and 2, but only during a portion of the daylight hours (Today and Tomorrow periods) in the other segments. But since there is time continuity in the first two segments, both instances of the Small Craft Advisory in Segments 3, 4 and 5 receive the same ETN of *0005*.

Product 14

Scenario: Just Small Craft Advisory Remains
Issuing Office: WFO Upton NY (KOKX)
Current time: 1520 UTC on January 24, 2005
Event (Product): Small Craft Advisory (CWF)
Forecast valid for: Northwestern North Atlantic Marine Zones 330, 335, 338, 350, 353, and 355
Product expiration time: 2100 UTC on January 24, 2005
Event Tracking Numbers: 5th Small Craft Advisory of the year issued by KOKX
Segment 1
Valid for: Northwestern North Atlantic Marine Zones 350, 353 and 355
Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory:
1000/1400 UTC on January 24 and 2300 UTC on January 25, 2005
Segment 2
Valid for: Northwestern North Atlantic Marine Zone 330
Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory:
1000 UTC and 2300 UTC on January 24, and again 1700 UTC and 2300 UTC on January 25, 2005

Segment 3

Valid for: Northwestern North Atlantic Marine Zone 335

Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory:

1000 UTC and 2300 UTC on January 24, and again 1700 UTC and 2300 UTC on January 25, 2005

Segment 4

Valid for: Northwestern North Atlantic Marine Zone 338

Expected (*or actual*) Event Beginning and Ending times of the Small Craft Advisory:

1000 UTC and 2300 UTC on January 24, and again 1100 UTC and 2300 UTC on January 25, 2005

```
(segment 1 of 4 within CWF product)
ANZ350-353-355-242100-                                  (UGC)
/O.CON.KOKX.SC.Y.0005.000000T0000Z-050125T2300Z/         (P-VTEC)

(segment 2 of 4 within CWF product)
ANZ330-242100-                                          (UGC)
/O.EXT.KOKX.SC.Y.0005.000000T0000Z-050124T2300Z/         (P-VTEC 1)
/O.CON.KOKX.SC.Y.0005.050125T1700Z-050125T2300Z/         (P-VTEC 2)

(segment 3 of 4 within CWF product)
ANZ335-242100-                                          (UGC)
/O.EXT.KOKX.SC.Y.0005.000000T0000Z-050124T2300Z/         (P-VTEC 1)
/O.EXT.KOKX.SC.Y.0005.050125T1700Z-050125T2300Z/         (P-VTEC 2)

(segment 4 of 4 within CWF product)
ANZ338-242100-                                          (UGC)
/O.EXT.KOKX.SC.Y.0005.000000T0000Z-050124T2300Z/         (P-VTEC 1)
/O.CON.KOKX.SC.Y.0005.050125T1100Z-050125T2300Z/         (P-VTEC 2)
```

Explanation: The last of the Gale Warning (ETN *0003*) expired at 1400 UTC, and only Small Craft Advisory conditions remain. The first two segments of the previous forecast have been combined into one. Even though the Small Craft Advisory began at different times in the two segments (1000 and 1400 UTC), the forecasts are now the same and both segments had and still have the same event ending time (2300 UTC on the 25th). In contrast, Segments 3 and 4 could not be combined, since the event beginning time of the second instance of Small Craft has changed in Segment 4 and carries an *EXT* action code (as opposed to the *CON* action code for the second instance of Small Craft in Segment 3).

4. P-VTEC and H-VTEC Examples and Interpretations. Following are examples with interpretations of certain hydrologic products using P-VTEC and H-VTEC strings (including the preceding UGC string that defines the affected geographic area and product expiration time), for (a) single event within one segment, (b) multiple events within one segment, (c) change to an event, and (d) full event sequence.

a. Single Event.

Example (1) - Areal Flood Warning (FLW)

Scenario: Initial Warning issuance
Issuing Office: WFO Spokane WA (KOTX)
Current time: 1803 UTC on June 6, 2004
Event (Product): Areal Flood Warning (FLW)
Warning valid for: Washington County 51

Product expiration time: 0100 UTC on June 7, 2004
Event Tracking Number: 1st Areal Flood Warning of the year issued by KOTX
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *1803 UTC June 6, 2004*, not coded, and 0100 UTC on June 7, 2004

```
WAC051-070100-                                                  (UGC)
/O.NEW.KOTX.FA.W.0001.040606T1803Z-040607T0100Z/                 (P-VTEC)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/           (H-VTEC)
```

Explanation: WFO Spokane, WA issued its 1st Areal Flood Warning (product and event the same) of the year on June 6, 2004, valid from 1803 UTC and 0100 UTC on the 7th (from the P-VTEC string), for the Pend Oreille River in Pend Oreille County (from the UGC string). The flood elements (as is typical) were not known for this widespread areal flood, except that the cause of flooding, excessive rainfall (*ER* - from the H-VTEC string), was known to have occurred above the dam.

Example (2) - Flood Warnings for Forecast Points (FLW)

Scenario: Initial Warning issuance
Issuing Office: WFO Sioux Falls SD (KFSD)
Current time: 1205 UTC on December 14, 2004
Event (Product): Flood Warning for Forecast Points (FLW)
Immediate Cause: Excessive Rainfall
Product expiration time: 0005 UTC on December 15, 2004
Segment 1
- Warning valid for: Big Sioux River near Brookings (BRKS2 - South Dakota Counties 11 and 101)
- Event Tracking Number: 7th Flood Warning of the year for Forecast Points issued by KFSD
- Expected Flood Severity: Moderate
- Expected Event Beginning, Crest, and Ending times of the Warning: 1600 UTC on December 16, 1600 UTC on December 18, and 1200 UTC on December 19, 2004

Segment 2
- Warning valid for: Big Sioux River near Dell Rapids (DERS2 - South Dakota County 99)
- Event Tracking Number: 8th Flood Warning of the year for Forecast Points issued by KFSD
- Expected Flood Severity: Major
- Expected Event Beginning, Crest, and Ending times of the Warning: 0400 UTC on December 17, 1700 UTC on December 18, and 0200 UTC on December 20, 2004

Segment 3
- Warning valid for: Big Sioux River at Akron (AKR14 - Iowa County 149 and South Dakota County 127)
- Event Tracking Number: 9th Flood Warning of the year for Forecast Points issued by KFSD
- Expected Flood Severity: Moderate
- Expected Event Beginning, Crest, and Ending times of the Warning: 0400 UTC on December 17, 1900 UTC on December 18, and 1200 UTC on December 20, 2004

(segment 1 of 3 within FLW product - new warning for the Big Sioux near Brookings)

```
SDC011-101-150005-                                              (UGC)
/O.NEW.KFSD.FL.W.0007.041216T1600Z-041219T1200Z/                 (P-VTEC)
/BRKS2.2.ER.041216T1600Z.041218T1600Z.041219T1200Z.NO/           (H-VTEC)
```

(segment 2 of 3 within FLW product - new warning for the Big Sioux near Dell Rapids)

```
SDC099-150005-                                                  (UGC)
/O.NEW.KFSD.FL.W.0008.041217T0400Z-041220T0200Z/                 (P-VTEC)
/DERS2.3.ER.041217T0400Z.041218T1700Z.041220T0200Z.NO/           (H-VTEC)
```

(segment 3 of 3 within FLW product - new warning for the Big Sioux at Akron)

```
IAC149-SDC127-150005-                                           (UGC)
/O.NEW.KFSD.FL.W.0009.041217T0400Z-041220T1200Z/                 (P-VTEC)
/AKRI4.2.ER.041217T0400Z.041218T1900Z.041220T1200Z.NO/           (H-VTEC)
```

Explanation: This new Flood Warning product from WFO Sioux Falls has been issued for three forecast points on the Big Sioux River. Each forecast point is in a separate segment, and each forecast point is given a different ETN (of 0007, 0008 and 0009). The event beginning and ending times for each forecast point are the times when the river at that point is expected to reach flood stage and then fall below flood stage, respectively. In this case, the beginning and ending event times in each P-VTEC string will be the same as the beginning and ending event times in the corresponding H-VTEC string. The product expiration time (from the UGC strings) is the same in all three segments, and denotes the time by which an updated product will be issued. Note that for this long duration event, the product expiration time occurs nearly 40 hours before the flooding is expected to begin in the first (furthest upstream) segment (from the P-VTEC and H-VTEC strings). The Flood Severity (first element in the H-VTEC strings), is Moderate (2) for the first and third segments, and Major (3) for the second segment. The flooding was caused by Excessive Rainfall (*ER* - in the H-VTEC string).

Example (3) - Flood Statement - Follow-up to Flood Warnings for Forecast Points (FLS)

Scenario: Flood Warnings have Expired
Issuing Office: WFO Quad Cities IA IL (KDVN)
Current time: 1535 UTC on May 3, 2004
Event (Product): Flood Warning for Forecast Points (FLS)
Immediate Cause: Excessive Rainfall
Product expiration time: 1635 UTC on May 3, 2004
Segment 1

- Warning valid for: Mississippi River near Gladstone (GLDI2 - Iowa County 89 and Illinois County 25)
- Event Tracking Number: 9th Flood Warning of the year for Forecast Points issued by KDVN
- Expected Flood Severity: Minor
- Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *2000 UTC on April 26*, *1100 UTC on April 30*, and 1500 UTC on May 3, 2004

Segment 2

- Warning valid for: Mississippi River at Burlington (BRLI4 - Iowa County 99 and Illinois County 34)
- Event Tracking Number: 10th Flood Warning of the year for Forecast Points issued by KDVN
- Expected Flood Severity: Minor
- Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *2000 UTC on April 26*, *2300 UTC on April 29*, and *1535 UTC on May 3, 2004*

(segment 1 of 2 within FLS product - warning canceled for the Mississippi near Gladstone)

```
IAZ089-ILZ025-031635-                                           (UGC)
/O.EXP.KDVN.FL.W.0009.000000T0000Z-040503T1500Z/                 (P-VTEC)
/GLDI2.1.ER.040426T2000Z.040430T1100Z.040503T1500Z.NO/           (H-VTEC)
```

(segment 2 of 2 within FLS product - warning canceled for the Mississippi at Burlington)

```
IAZ099-ILZ034-031635-                                          (UGC)
/O.EXP.KDVN.FL.W.0010.000000T0000Z-040503T1535Z/               (P-VTEC)
/BRLI4.1.ER.040426T2000Z.040429T2300Z.040503T1535Z.NO/         (H-VTEC)
```

Explanation: This Flood Statement product from WFO Quad Cities has been issued for two forecast points on the Mississippi River. Each forecast point is in a separate segment, and each forecast point has a different ETN (of 0009 and 0010). Since the flood warnings were in effect until their event ending times, the P-VTEC EXP (Expired) action code is used. This is a final message, informing that the flood warnings are no longer in effect. The event beginning times in each P-VTEC string has been set to zeros, since the flooding began at both points back on April 26th (in the H-VTEC codes). The event ending times used in the previous product are used in the P-VTEC and H-VTEC strings in both segments. The product expiration time (from the UGC strings) is the same in both segments, and allows for dissemination via NOAA Weather Radio and other outlets. The Flood Severity (first element in the H-VTEC strings), is Minor (1) for both segments. The flooding was caused by Excessive Rainfall (*ER* - in the H-VTEC string). The time that the river crested at each forecast point is the second (middle) time string in the H-VTEC string.

b. Multiple Events.

Example - Combined Severe Thunderstorm and Flash Flood Warning

Scenario: Initial Combined Warning issuance
Issuing Office: WFO Tucson AZ (KTWC)
Current time: 1835 UTC on August 13, 2005
Events (Product): Combined Severe Thunderstorm and Flash Flood Warning (FFW)
Warning valid for: Arizona County 19
Product expiration time: 2000 UTC on August 13, 2005
Event Tracking Numbers: 35th Flash Flood Warning and 42nd Severe Thunderstorm Warning of the year issued by KTWC
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Flash Flood Warning: *1835 UTC on August 13, 2005*, not coded, and 2000 UTC on August 13, 2005
Expected (*or actual*) Event Beginning and Ending times of the Severe Thunderstorm Warning: *1835 UTC* and 2000 UTC on August 13, 2005

```
AZC019-132000-                                                 (UGC)
/O.NEW.KTWC.FF.W.0035.050813T1835Z-020813T2000Z/               (P-VTEC 1)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/         (H-VTEC)
/O.NEW.KTWC.SV.W.0042.050813T1835Z-020813T2000Z/               (P-VTEC 2)
```

Explanation: This Combined Severe Thunderstorm/Flash Flood Warning has three VTEC strings, a P-VTEC and H-VTEC string associated with the Flash Flood, and a single P-VTEC string associated with the Severe Thunderstorm. The Flash Flood strings appear first, based on the fourth criteria listed in Section 3.3 in the main body of the text. Although the beginning and ending times of the Flash Flood are encoded in the first P-VTEC string, all the times in the corresponding H-VTEC string (event beginning, crest, and event ending) are encoded as zeros, as this is an areal Flash Flood event without a forecast point to derive a crest time or flood severity.

c. Change to an Event.

Example - Cancelled Severe Thunderstorm portion of combined Severe Thunderstorm and Flash Flood Warning (follow-up statement from Section b).

Scenario: Follow-up statement - Severe Thunderstorm cancelled, Flash Flood continued
Issuing Office: WFO Tucson AZ (KTWC)
Current time: 1900 UTC on August 13, 2005
Events (Product): Combined Severe Thunderstorm and Flash Flood Warning (FFS)
Warning valid for: Arizona County 19
Product expiration time: 2000 UTC on August 13, 2005
Event Tracking Numbers: 35th Flash Flood Warning and 42nd Severe Thunderstorm Warning of the year issued by KTWC
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Flash Flood Warning: *1835 UTC on August 13, 2005*, not coded, and 2000 UTC on August 13, 2005
Expected (*or actual*) Event Beginning and Ending times of the Severe Thunderstorm Warning: *1835 UTC* and 2000 UTC (*1900 UTC*) on August 13, 2005

```
AZC019-132000-                                                  (UGC)
/O.CAN.KTWC.SV.W.0042.000000T0000Z-050813T2000Z/                (P-VTEC 1)
/O.CON.KTWC.FF.W.0035.000000T0000Z-050813T2000Z/                (P-VTEC 2)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/          (H-VTEC)
```

Explanation: The follow-up statement for the Combined warning is issued as a Flash Flood Statement (FFS). The Severe Thunderstorm portion of the Warning has been cancelled (*CAN*). The Flash Flood Warning is being continued (*CON*). Because both events have begun, the event beginning time in both P-VTEC strings is set to zeros. Note that in this follow-up statement, the Severe Thunderstorm P-VTEC appears first, since the *CAN* action code appears before the *CON* action code when they both appear in the same product segment.

d. Full Event Sequence.

Example - Flooding situation, from watch to advisory and warnings to eventual cancellation and expiration, including the follow-up statements.

Product 1

Scenario: New Flood Watch is Issued
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 0830 UTC on April 13, 2005
Event (Product): Areal Flood Watch (FFA)
Immediate Cause: Excessive Rainfall
Watch valid for: Maryland Zones 2 thru 7, 9 thru 11, 13, and 14; Virginia Zones 27, 28, 30, 31, 41, 42, and 53 thru 55; West Virginia Zones 48 thru 53, and 55; and District of Columbia Zone 1
Product expiration time: 2100 UTC on April 13, 2005
Event Tracking Number: 10th Flood Watch of the year issued by KLWX
Expected Flood Severity: None coded
Expected Event Beginning, Crest, and Ending times of the Watch: 2200 UTC on April 13, 2005, not coded, 1000 UTC on April 14, 2005

```
MDZ002>007-009>011-013-014-VAZ027-028-030-031-
041-042-053>055-WVZ048>053-055-DCZ001-132100-            (UGC)
/O.NEW.KLWX.FA.A.0010.050413T2200Z-050413T1000Z/         (P-VTEC)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/   (H-VTEC)
```

Explanation: This new Flood Watch from WFO Baltimore/Washington has been issued for Tonight (2200 UTC to 1000 UTC) for a number of zones in their forecast area. The beginning and ending event times in the P-VTEC string correspond to the beginning and ending times of the Watch. Because this is a Flood Watch, the only H-VTEC element not coded with letter Os or zeros is the Immediate Cause, which is *ER* for Excessive Rainfall.

Product 2

Scenario: Follow-up Watch Statement
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 2000 UTC on April 13, 2005
Event (Product): Areal Flood Watch (FFA)
Immediate Cause: Excessive Rainfall
Watch continued for: Maryland Zones 2 thru 7, 9 thru 11, 13, and 14; Virginia Zones 27, 28, 30, 31, 41, 42, and 53 thru 55; West Virginia Zones 48 thru 53, and 55; and District of Columbia Zone 1
Product expiration time: 0900 UTC on April 14, 2005
Event Tracking Number: 10th Flood Watch of the year issued by KLWX
Expected Flood Severity: None given
Expected Event Beginning, Crest, and Ending times of the Watch: 2200 UTC on April 13, 2005, not coded, 2200 UTC on April 14, 2005

```
MDZ002>007-009>011-013-014-VAZ027-028-030-031-
041-042-053>055-WVZ048>053-055-DCZ001-140900-            (UGC)
/O.EXT.KLWX.FA.A.0010.050413T2200Z-050414T2200Z/         (P-VTEC)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/   (H-VTEC)
```

Explanation: The Flood Watch has been extended through the Tomorrow period (until 2200 UTC on April 14th). With the exception of the *EXT* action code and new Event Ending time, the VTEC strings remain the same in as the original watch.

Product 3

Scenario: New Flood Advisory for Forecast Points (issued under the Flood Statement identifier)
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 0300 UTC on April 14, 2005
Event (Product): Flood Advisory for Forecast Points (FFS)
Segment 1
- Immediate Cause: Excessive Rainfall
- Advisory valid for: Potomac River at Little Falls (BRKM2 - Maryland County 31, Virginia County 59)
- Segment expiration time: 0800 UTC on April 14, 2005
- Event Tracking Number: 16th Flood Advisory of the year for Forecast Points issued by KLWX
- Expected Flood Severity: None
- Expected Event Beginning, Crest, and Ending times of the Advisory: 0400 UTC on April 14, 2005, not coded, 0800 UTC on April 14, 2005

Segment 2
- Immediate Cause: Elevated Upstream Flow plus Tidal Effects

Advisory valid for: Tidal Potomac River at Wisconsin Avenue (GTND2 - Maryland County 31, Virginia County 13 and 510 [an Independent City], and the District of Columbia [County 1])
Segment expiration time: 0900 UTC on April 14, 2005
Event Tracking Number: 17th Flood Advisory of the year for Forecast Points issued by KLWX
Expected Flood Severity: None
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Advisory: *0300 UTC on April 13, 2005*, not coded, 0900 UTC on April 14, 2005

(segment 1 of 2 within FLS product - new advisory for the Potomac River at Little Falls)

```
MDC031-VAC059-140800-                                          (UGC)
/O.NEW.KLWX.FL.Y.0016.050414T0400Z-050414T0800Z/                (P-VTEC)
/BRKM2.N.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/         (H-VTEC)
```

(segment 2 of 2 within FLS product - new advisory for the Tidal Potomac River at Wisconsin Ave)

```
MDC031-VAC013-510-DCC001-140900-                               (UGC)
/O.NEW.KLWX.FL.Y.0017.050414T0300Z-050414T0900Z/                (P-VTEC)
/GTND2.N.ET.000000T0000Z.000000T0000Z.000000T0000Z.OO/         (H-VTEC)
```

Explanation: A new Flood Advisory (issued as a Flood Statement product) has been issued for rapid but below flood stage stream level rises at two points within the Flood Watch area. Each forecast point is given a different ETN (independent of the Flood Watch ETN), and each forecast point has its own Event Beginning and Ending Times. The only H-VTEC elements coded in this Advisory are the Site Identifier, the Flood Severity (*N* for none - since flooding is not expected) and Immediate Cause (which is either *ER* for Excessive Rainfall or *ET* for Elevated Upstream Flow and Tidal Effects).

Product 4

Scenario: Follow-up Flood Watch Product - Cancel part and Continue the rest
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 0830 UTC on April 14, 2005
Event (Product): Areal Flood Watch (FFA)
Product valid for: Maryland Zones 2 thru 7; 9 thru 11, 13 and 14; Virginia Zones 27, 28, 30, 31, 41, 42, and 53 thru 55; West Virginia Zones 48 thru 53, and 55; and District of Columbia Zone 1
Immediate Cause: Excessive Rainfall
Product expiration time of the
Canceled segment (segment 1): 1000 UTC on April 14, 2005
Continued segment: 2200 UTC on April 14, 2005
Event Tracking Number: 10th Flood Watch of the year issued by KLWX
Expected Flood Severity: None given
Segment 1
Valid for: Maryland Zones 2 and 3; Virginia Zones 27, 28, 30, 31; and West Virginia Zones 48 thru 53, and 55
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Watch: *2200 UTC on April 13, 2005*, not coded, 2200 UTC on April 14, 2005 (*0830 UTC on April 14, 2005*)
Segment 2
Valid for: Maryland Zones 4 thru 7, 9 thru 11, 13, and 14; Virginia Zones 41, 42, and 53 thru 55; and District of Columbia Zone 1
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Watch: *2200 UTC on April 13, 2005*, not coded, 2200 UTC on April 14, 2005

(segment 1 of 2 within FFA product - canceled portion of watch)

```
MDZ002-003-VAZ027-028-030-031-WVZ048>053-055-141000-     (UGC)
/O.CAN.KLWX.FA.A.0010.000000T0000Z-050414T2200Z/         (P-VTEC)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/   (H-VTEC)
```

(segment 2 of 2 within FFA product - continued rest of watch)

```
MDZ004>007-009>011-013-014-VAZ041-042-053>055-
DCZ001-142200-                                           (UGC)
/O.CON.KLWX.FA.A.0010.000000T0000Z-050414T2200Z/         (P-VTEC)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/   (H-VTEC)
```

Explanation: A portion of the Flood Watch has been canceled, while the rest of the watch was continued with the same expected Event Ending Time of 2200 UTC on the 14th. Since the watch was valid beginning at 2200 UTC on the 13th, the Event Beginning Time in both segments has been coded as zeros.

Product 5

Scenario: New Flood Warning is Issued
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 1100 UTC on April 14, 2005
Event (Product): Flood Warning for Forecast Point (FLW)
Immediate Cause: Excessive Rainfall
Watch valid for: The Monocacy River at Frederick MD (FDKM2 - Maryland County 21)
Product expiration time: 1700 UTC on April 14, 2005
Event Tracking Number: 20th Flood Warning of the year for Forecast Points issued by KLWX
Expected Flood Severity: Minor
Expected Event Beginning, Crest, and Ending times of the Warning: 1200 UTC, 1600 UTC, and 2000 UTC on April 14, 2005

```
MDC021-141700-                                           (UGC)
/O.NEW.KLWX.FL.W.0020.050414T1200Z-050414T2000Z/         (P-VTEC)
/FDKM2.1.ER.050414T1200Z.050414T1600Z.050414T2000Z.NO/   (H-VTEC)
```

Explanation: A new Point Flood Warning has been issued. The ETN for this Flood Warning event is independent of the one used for the Flood Watch, which remains in effect. The beginning and ending event times in the P-VTEC string correspond to when the river stage is expected to rise above and fall below flood stage. These times, along with the expected crest time, are also encoded in the H-VTEC string. Because there are both historic and forecast stages for this site, all the H-VTEC elements have been filled in with actual data.

Product 6

Scenario: A Second Flood Warning is Issued
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 1300 UTC on April 14, 2005
Event (Product): Flood Warning for Forecast Point (FLW)
Immediate Cause: Excessive Rainfall
Watch valid for: The Potomac River at Shepherdstown (SHEW2 - Maryland County 43; and West Virginia County 37)
Product expiration time: 2000 UTC on April 14, 2005
Event Tracking Number: 21st Flood Warning of the year for Forecast Points issued by KLWX
Expected Flood Severity: Minor
Expected Event Beginning, Crest, and Ending times of the Warning: 1500 UTC, 1900 UTC, and 2200 UTC on April 14, 2005

```
MDC043-WVC037-142000-                                          (UGC)
/O.NEW.KLWX.FL.W.0021.050414T1500Z-050414T2200Z/               (P-VTEC)
/SHEW2.1.ER.050414T1500Z.050414T1900Z.050414T2200Z.NO/         (H-VTEC)
```

Explanation: A second new Point Flood Warning has been issued, with the next Flood Warning ETN used. The remainder of the P-VTEC and H-VTEC coding is similar to the first Warning, but uses the historic and forecast data for this site.

Product 7

Scenario: Cancel remainder of Watch
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 1600 UTC on April 14, 2005
Event (Product): Areal Flood Watch (FFA)
Immediate Cause: Excessive Rainfall
Watch canceled for: Maryland Zones 4 thru 7, 9 thru 11, 13, and 14; Virginia Zones 41, 42, and 53 thru 55; and District of Columbia Zone 1
Product expiration time: 1700 UTC on April 14, 2005
Event Tracking Number: 10th Flood Watch of the year issued by KLWX
Expected Flood Severity: None given
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Watch: *2200 UTC on April 13, 2005*, not coded, 2200 UTC (*1600 UTC*) on April 14, 2005

```
MDZ004>007-009>011-013-014-VAZ041-042-053>055-
DCZ001-141700-                                                 (UGC)
/O.CAN.KLWX.FA.A.0010.000000T0000Z-050414T2200Z/               (P-VTEC)
/00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.OO/         (H-VTEC)
```

Explanation: The remainder of the Flood Watch is canceled, even though the Flood Warnings remain in effect, as no additional flooding is expected. The previous Event Ending Time of 2200 UTC is still used, although the *CAN* action code implies that the watch is canceled immediately when the product is issued. The Product Expiration Time (in the UGC) is set an hour in the future to allow the cancellation message to be disseminated over NOAA Weather Radio and other outlets.

Product 8

Scenario: Cancel first Flood Warning
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 1800 UTC on April 14, 2005
Event (Product): Flood Warning for Forecast Point (FLS)
Immediate Cause: Excessive Rainfall
Watch canceled for: The Monocacy River at Frederick MD (FDKM2 - Maryland County 21)
Product expiration time: 1900 UTC on April 14, 2005
Event Tracking Number: 20th Flood Warning of the year for Forecast Points issued by KLWX
Expected Flood Severity: Minor
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *1200 UTC, 1530 UTC*, and 2000 UTC (*1745 UTC*) on April 14, 2005

```
MDC021-141900-                                                 (UGC)
/O.CAN.KLWX.FL.W.0020.000000T0000Z-050414T2000Z/               (P-VTEC)
/FDKM2.1.ER.050414T1200Z.050414T1530Z.050414T1745Z.NO/         (H-VTEC)
```

Explanation: The first Flood Warning (for the Monocacy River at Frederick) is canceled two hours before the most recent Event Ending Time, as the gauge fell below flood stage at 1745 UTC. While that same Event Ending Time (of 2000 UTC) remains in the P-VTEC string, the actual Flood Ending Time (of 1745 UTC) is encoded in the H-VTEC string. The other H-VTEC times

remain coded with non-zero values, although the Flood Crest time has been changed from the previous forecast of 1600 UTC to 1530 UTC, when the crest actually occurred.

Product 9

Scenario: Second Flood Warning is Extended in Time
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 1900 UTC on April 14, 2005
Event (Product): Flood Warning for Forecast Point (FLS)
Immediate Cause: Excessive Rainfall
Watch extended for: The Potomac River at Shepherdstown (SHEW2 - Maryland County 43; and West Virginia County 37)
Product expiration time: 2300 UTC on April 14, 2005
Event Tracking Number: 21st Flood Warning of the year for Forecast Points issued by KLWX
Expected Flood Severity: Minor
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *1500 UTC*, 1930 UTC, and 2300 UTC on April 14, 2005

```
MDC043-WVC037-142300-                                          (UGC)
/O.EXT.KLWX.FL.W.0021.000000T0000Z-050414T2300Z/               (P-VTEC)
/SHEW2.1.ER.050414T1500Z.050414T1930Z.050414T2300Z.NO/         (H-VTEC)
```

Explanation: The second Flood Warning (for the Potomac River at Shepherdstown) has been extended an hour to 2300 UTC. The P-VTEC and H-VTEC coding in this follow-up product is similar to that of the previous product, and the Flood Crest time in the H-VTEC string has been replaced with an updated forecast of 1930 UTC.

Product 10

Scenario: Second Flood Warning has Expired
Issuing Office: WFO Baltimore MD/Washington DC (KLWX)
Current time: 2300 UTC on April 14, 2005
Event (Product): Flood Warning for Forecast Point (FLS)
Immediate Cause: Excessive Rainfall
Watch expired for: The Potomac River at Shepherdstown (SHEW2 - Maryland County 43; and West Virginia County 37)
Product expiration time: 2330 UTC on April 14, 2005
Event Tracking Number: 21st Flood Warning of the year for Forecast Points issued by KLWX
Expected Flood Severity: Minor
Expected (*or actual*) Event Beginning, Crest, and Ending times of the Warning: *1500 UTC, 1930 UTC*, and *2300 UTC on April 14, 2005*

```
MDC043-WVC037-142330-                                          (UGC)
/O.CAN.KLWX.FL.W.0021.000000T0000Z-050414T2300Z/               (P-VTEC)
/SHEW2.1.ER.050414T1500Z.050414T1930Z.050414T2300Z.NO/         (H-VTEC)
```

Explanation: The Flood Warning for the Potomac River at Shepherdstown expired at 2300 UTC, and this final follow-up statement indicates that the Flooding has ended. As with all expiration messages, the Product Expiration Time extends beyond the Ending Time of the event to allow for dissemination of the product over NOAA Weather Radio and other outlets.